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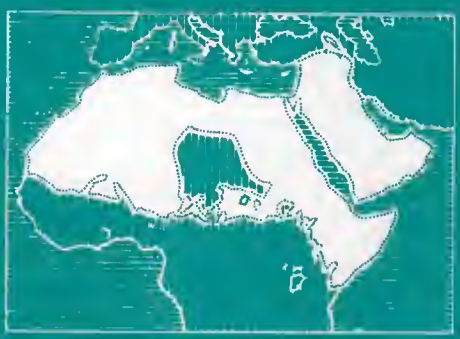

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Igor M. Diakonoff

Proto-Afrasian and Old Akkadian
A study in historical phonetics

with contributions by
Olga Stolbova and Alexander Militarëv

Institute of Semitic Studies
Princeton, New Jersey, USA

1991-92

To Erica Reiner

from a respectful but obstreperous pupil

Igor Diakonoff

CONTENTS

INTRODUCTION

In the days of descriptive and structural linguistics, phonetics was a largely neglected branch of linguistic science. Once we could define the number of phonemes by the method of minimal pairs, and their systemic correlation by oppositions, the actual pronunciation was the concern of spoken language teachers; least of all it could interest scholars working on dead written languages, of which one could with good reason suppose that we never should be able to recapture the living phonetic forms, at least not with any degree of strict precision.

However, the author has ventured into the unprofitable field of phonetic reconstruction of dead Semitic languages, – first and foremost Akkadian, – believing that the discussion of the problems in question would be useful for at least two directions of science.

(1) Phonetic (not only phonemic) reconstruction is a necessity for comparative linguistics because the subsequent changes of reconstructed proto-forms in the individual languages depend, first of all, on phonetic conditions; and on the phonemic phenomena only insofar as the changes are not spontaneous but systemic; hence the importance of the following discussion for Afrasian reconstruction in general.

(2) In the particular field of cuneiform studies, all our knowledge of Sumerian is based on Sumero-Akkadian vocabularies, bilingual texts, and borrowings from Sumerian into Akkadian; and the only way to establish the Sumerian phonological system is to find out the phonetic picture as revealed by the transcription of Sumerian glosses in Akkadian cuneiform. However, to interpret correctly the data of such transcriptions, it is imperative to learn how they were pronounced **in Akkadian.**

It is precisely because of our nearly complete ignorance of its phonetic, and, consequently, also of its phonological system (as a system), that Sumerian is still an isolated language, whose kinship with any other language, or membership in any known language family of the world has so long defied discovery. Hence the importance of the following discussion for Sumerology – and perhaps eventually for the reconstruction of the proto-language of some linguistic family or phylum, to which Sumerian may have belonged.

The task is not an easy one, but I shall try to show that there are ways and methods to approach the solution of the problems submitted to the reader in this book.

The following is based on the preliminary results of a comparative study of Afrasian (AA) languages aiming at the reconstruction of the Proto-Afrasian (PAA) phonological system and vocabulary in the framework of a future *Comparative Historical Vocabulary of Afrasian*. This has been conducted by a team of linguists from Leningrad and Moscow; I have especially drawn continuously – and gratefully – from the observations and results achieved by Olga Stolbova and Alexander Militarëv; in Chapter 1. they have been my direct co-authors.

Returning to the problem of studying phonetics of dead languages, I think it proper to state the difference in our approach from that of the Assyriologists of the preceding generation, – of the pre-phonological age.

The basis for evaluating the pronunciation of ancient graphemes remains, of course, etymology, i.e. identification of the values of the individual signs and sign-series

with the phonemes in related languages as expressed in other writing systems and established by the native philological tradition. However, identifying a phoneme in a given dead language as a reflex of a phoneme in another language does not guarantee the similarity of its pronunciation in the particular dead language we are investigating.

The major figures in cuneiform studies of the preceding generation, such as Wolfram von Soden, Adam Falkenstein, as well as some of their pupils, e.g. Karlheinz Deller, seemed to believe that the necessary data for reconstructing the phonetics are explicitly given in the spelling, as if the ancient scribes had taken care to render the pronunciation as faithfully as possible. Hence the attempts to discover new vowels, e.g. /o/, /ä/, /ü/[1], not warranted by the phonological system as such; and, contrariwise, "überhängende Vokale" where the spelling does not show the presence of a vowel, but the morphological system seems (to the grammarian) to demand it, or vice versa[2];

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1. These reconstructions are based on the spelling variants C*a*/C*u*, C*a*/C*i*, C*u*-*u*C/C*u*-*i*C etc. However, from Greek transcriptions it looks as if [o], [o:] were the **normal** pronunciation of the (Late?) Akkadian phonemes spelled *u*, *u:* (the Greek *ypsilon*, [y] or [ü], and the Greek diphthong *ou* being used much more seldom). Note also that a foreign /o/ is invariably transcribed as *u* in Akkadian, never as **a*. This shows that Akkadian /u/ was, anyway, nearer to [o] than to [ü]. Compare the situation in other Semitic languages: Arabic has three vowel phonemes in a short and a long variant, /a, i, u, a:, i:, u:/, but each of these phonemes has allophones, e.g. [å], [ā] etc. The same situation obtains in Aramaic, where a comparison of dialects shows the nonphonemic character of the distinction between, e.g. [e:] and [i:], or [u] and [o]. Here, as also in Hebrew and Akkadian, the picture is partly distorted by the fact that the diphthongs /ai/, /au/ tend to develop into [e:], [o:] (in Akkadian the latter is at least spelled *u:*, but probably read [o:]). In Hebrew and Biblical Aramaic, the Masoretic vocalization is certainly subphonemic, and e.g. [a] (the *ḥå:ṭe:ƥ pattaḥ*), *ä* (the *səgo:l*), and *a* (the *pattaḥ*) are positional allophones of the phoneme /a/ (the *səgo:l* is not only [ā] but also [e], an allophone of [i] along with the *ḥå:ṭe:ƥ səgo:l* [ɛ̄] and the short variant of the *ḥi:rāq* [i], and, in Aramaic, also of the *ṣe:re:* [e] which in Hebrew usually represents the long /i:/, as [e:]. In the same way the *qå:māṣ* is used both for [å], and, in closed unstressed syllable, for [ɔ], the first representing the phoneme /a:/, the second the phoneme /u/).

The Neo-Assyrian variant spellings, being, unlike the Masoretic vocalization, inconsistent, have little worth for the reconstruction of phonology, and as a rendering of the phonetic realizations they are ambiguous and not very reliable. However, they are possibly to be compared with the Masoretic *šəwa:* and the "coloured" *šəwa:*'s (the *ḥå:ṭe:ƥ*s). Checking Deller's *Belegstellen* one cannot fail to notice that the variations C*a*/C*u*, C*a*/C*i* are restricted to short unstressed vowels, hence these variations in the Neo-Assyrian dialect are more likely to render a neutral short vowel. Note that the Neo-Assyrian declension, supposedly Nom. Acc. **-u* Gen. **-i* is actually [-ŭ] [-ĭ], because at the preceding stage there were three nominal cases, Nom. *-u*, Gen. *-i*, Acc. *-a*, but with the gradual loss of external vocalic inflection, one of the oblique cases survives the nominative case. Hence the Neo-Assyrian *-u* < **-u*, **-a* must be interpreted as [-ŭ]. A replacement of the accusative case by the nominative is not to be expected, cf. Deller 1959:20 sqq.

2. See Deller 1959 §§8-17; Falkenstein 1949 §3.2., p. 12 sq.

Deller's "überhängende Vokale" and "Sprossvokale" in Neo-Assyrian are likely to be *šəwa:*'s, as in Hebrew or Berber; especially in the latter, – but at the later periods also in Hebrew. The pronunciation as [ə] or [Ø] is not phonologically relevant, and need not be rendered in bound transcription; this may keep the CVCV "syllabic" values of the signs out of the standard lists, which already have grown out of all proportion.

Note that also in Urartian cuneiform VC-signs are seldom used, and CV-signs, expecially in final position, seem to be also used for [-C#].

As to Falkenstein's "überhängenede Vokale" in Sumerian, they, like the non-rendering of the *-n* in Inlaut, probably attest to the Sumerian scribes' notorious unwillingness to be bothered by reproducing what they felt to be superfluous for a sufficient understanding of the text.

hence also the transliteration of Sumerian ideograms[3] like *ša*$_4$ for *šagga* etc., supposed to render the allophonic zero-pronunciation of the final consonant.[4]

In another paper (see Diakonoff 1975), I attempted to show that the ancient scribes' only concern was to give enough data in the written text for the reader to understand the information necessary for his practical needs. We have shown how the scribes of the Proto-Literate period composed the text out of ideographical signs, each depicting an object (if it **could** be depicted; if not, the rebus principle was applied, and the picture for another object was selected, whose name was approximately homophonous with the word in view). The ideogram was used for any word which could be mentally associated with the object, and the range of word-values was limited only by the field of associations of another depicted object. The scribes did not attempt to reproduce speech, to the extent of not reproducing even the word order. We could then show, how the scribes of the next periods, Early Dynastic I and II, using the same rebus procedure, introduced signs for some but by far not all morphemes as pointers to a more confident understanding of the message transmitted, etc., etc. At no point in the history of Sumerian writing (even when the texts were no longer written by Sumerian-speakers, but actually by Akkadians) did the scribe aim at a complete rendering of every phoneme. Thus a spelling with *-n* in Inlaut or Auslaut was always in free variation with a zero spelling. The reason is not that the scribes tried to reproduce a hypothetical nasal vowel: the pattern is universal for all early writing systems (thus in Mycenæan, Cypriote, Old Iranian, Runic, and Eskimo, and dozens of others).

The above does not refer solely to the Sumerian scribes. Also the Semitic scribes at Ebla, having borrowed their writing from the Sumerian Early Dynastic II system, treated not only Sumerian but also Semitic words in the same way: they could use the pure stem where an inflected form was expected, and vice versa; they used C*a*-signs to render C*a*, C*a:*, C*an*-, C*au*-, C*ai*, C*Ø*-, etc.

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3. At present, most of the Assyriologists have dropped the term "ideogram" and adopted the name "logogram", or "Wortzeichen". However, the Sumerian signs do not and were not intended to express one particular word in one particular phonetic guise; every Sumerian sign is polyvalent in principle: it is intended to induce a field of associations, and can express any word/notion inside that field. For example, the sign  does not stand for the phonetic scquences ***du*, *gub*, *tum*** but for the values 'go, stand, bring' (the object depicted is FOOT, but it does not have the sense 'footsole' or 'leg' because these values have each their own ideogram with its own field of associations Even a one-value sign as, e.g.  , does not stand for ***ša*$_4$** or ***šag*$_4$** but for HEART and its field of associations; the pronunciation is not anticipated. Thus, in Eme-sal (which is probably the language of Sumerian women and certain cultic persons, e.g. eunuchs; it differs from men's language Eme-gir$_8$ mainly in phonetics), often only a part of the text, especially the beginning, is spelled by "phonetic" (rebus) signs, just to indicate that the following is to be read in Eme-sal; the rest may partially or completely be written by using the more common ideographic signs. In Eme-sal HEART would be read [sab], even when not written syllabically as ***ša-ab***.

4. Transliteration of the type ***ša*$_4$** is inconvenient also because one has to memorize both the truncated form and the form which the stem acquires before a vowel inflection. Thus HEART is transcribed ***ša*$_4$**, and EXIT ***è***; however HEART + *a* is ***ša*$_4$*-ga*** but EXIT + *a* is ***è-da***. It is much easier to remember that any voiced final stop may have a zero allophone in final position. The first consonant of the sign expressing the *-a*-morpheme is a phonetic complement indicating the final consonant of the ideographically (and therefore ambiguously) rendered root/stem, hence ***šag*$_4$*-ga*, *ed-da*** (read [saga], [eda]. This would save hundreds of numerical indexes and be a blessing for printers.

Also at the later stages of cuneiform writing, as well as at the early stages of the quasi-alphabetic[5] scripts, the aim of the scribes was only to attain the greatest economy in the means of conveying the necessary information. Hence the incomplete or inaccurate rendering even of the consonantal phonological subsystem both in cuneiform (incomplete sign series, e.g. *zi*, *zu*, *ṣi-* and *ṣu*-signs, but only one sign for both *ṣa* and *za*; no differentiation at all between voiced, voiceless and emphatic consonants in In- and Auslaut), and in quasi-alphabetic writing (e.g. incomplete or even no differentiation of vowels in Hebrew, no differentiation between *š* and *ś* until it was introduced by the Masoretes in the early Middle Ages; nor between *ʕ* and γ, *ḥ* and *x* although now we know from the publication by Steiner and Nims (1984) and (1985) that these four phonemes were still correctly differentiated in pronunciation at least as late as the Hellenistic period, as appears from Demotic transcriptions of Aramaic texts;[6] and even the standard Greek alphabet lacks a letter for the phoneme /h/. In this situation there is always a possibility that rare phonemes might not have had special graphemes asigned to them, and that other inaccuracies in the rendering of phonetics may be present in the ancient writing systems (e.g. in Ugaritic).

A concern not only for the informative function of writing, but also for accurate rendering of the pronunciation was born only together with religions based on written Scriptures, and not before the early Middle Ages. A triumph of the new trend is the Masoretic vocalization of the Biblical texts attempting to render phonetic nuances at what actually is a subphonemic level.

Thus the approach to the ancient writing systems – Sumerian, Akkadian, or even Ugaritic and Phoenician – as to systems founded upon the phonetic principle is apt to create errors.

The phonetic realization of the phonemes cannot under the described conditions be recaptured from inside the text corpus alone. A completely new approach is indicated. In the same way as different chronologies are verified by synchronisms, so the approximate definition of the phonetic realizations of phonemes in different dead languages can be checked by mutual transcriptions of text segments written in different writing systems and by a closer study of phonotactics.

*

I would like to express my cordial gratitude to Robert Hetzron for his careful editing of this book.

5. We call "quasi-alphabetic" such syllabic writing systems where each sign stands for the combination of consonant plus any vowel or zero; the various Semitic non-cuneiform writing systems (the so-called "Phoenician"; also the Ugaritic cuneiform script) are quasi-alphabetic. The first actual alphabet, as has been shown convincingly by I.J. Gelb, is the Greek.

6. And, of course, also from the Septuagint transcriptions of Hebrew proper names.

CHAPTER 1.

PROTO-AFRASIAN PHONOLOGY

(Written in collaboration with O.V. Stolbova and A. Yu Militarëv, who are chiefly responsible for the vocabulary in 1.5.)

1.0. General principles. Working together with Anna Belova, Olga Stolbova, Alexander Militarëv and Victor Porkhomovsky, and with our other collaborators, on a comparative historical vocabulary of Afrasian, we arrived at certain conclusions of a general character regarding the Proto-Afrasian (PAA) phonological system:

(1) In PAA, the phonemes were consonants, vowels, or sonants (see Chapter 4 for details);

(2) The consonants were either plosives, affricates, or fricatives.

(3) The plosives were either lax or "emphatic" (see Chapter 3). The affricates could be emphatic if they included a plosive emphatic element.

(4) The lax plosive consonants were either voiced or unvoiced. The affricates could be voiced if they included a voiced plosive element.

(5) The fricatives were lax, but only unvoiced. Thus, there were **f*, **s*, **š*, **ŝ*, **h*, **ḥ*, **x* but they had no voiced counterparts. The *ʕain*, although acoustically a counterpart of the laryngeal fricative *ḥ*, belongs to the sonants.

(6) Any affricate can be analyzed as a plosive (lax unvoiced, emphatic, or lax voiced) plus the corresponding fricative; the "emphasis" or the voicedness of the resulting affricate is due to the plosive element. Thus, **c*, **ç* **ʒ* are **(t+s)*, **(ṭ+s)*, **(d+s)* and so on, down to **X*, **Ẋ*, **9* which are **(k+x)*, **(ḳ+x)*, **(g+x)*; it goes without saying that **ţs* > **ṭṣ*, **ds* > **dz*, **gx* > **gɣ*.

(7) There were three series of sibilants: simple dental, groove-alveolar (or palatalized), and lateral (**s*, **š*, **ŝ*).

(8) There were two series of velars: simple and labialized. It is quite probable that some of the laryngeal and pharyngeal phonemes also had a labialized variant.

(9) There were two variants of voiced pharyngeal consonants, one (?) being a glottal stop, the other (*Ḥ*, labialized variant *Ḥ*^{w}) a peculiar sonant developed from correptive stress, like the Danish *Stødtone*.

1.1. The Proto-Afrasian Phonological System:

	Consonants	Sonants
Labial plosives	*p *ṗ *b	*m *ṃ
Labial fricatives	*f	
Dental plosives	*t *ṭ *d	*n *ṇ
Dental sibilant fricatives and affricates	*s *c *ç *ʒ	
same: bifocal	*š *č *ç̌ *ǯ[7]	*r *ṛ
same: lateral	*ŝ *ĉ *ç̂ ʔ	*l *ḷ *ḷ
Velar plosives	*k *ḳ *g	*y *i̯
same: labialized	*kʷ *ḳʷ *gʷ	*w *u̯
Velar fricatives and affricates	*x *X *Ẋ *9	
same: labialized	*xʷ *Xʷ *Ẋʷ *9ʷ	*ʕ (also plosive \dial. ʔ)
Laryngeal fricative	*ḥ/(ḥʷʔ)	
Pharyngeal plosive	*ʔ	
Pharyngeal fricative	*h/(*hʷʔ)	*H̯[8], *H̯ʷ

Vowels, hypothetically: *a* and *ə* (> *u* originally only in contact with labial and labialized consonants; in other positions usually > *i*). See also below, Chapter 5.

1.2. Preliminary remarks

In the following I shall quote representative examples of reflexes of the PAA phonemes in the individual families, branches and languages of the Afrasian (AA) phylum. These examples are not a vocabulary, and even for the item selected as exemplary, only the more significant attestations in the individual languages are quoted – just enough to illustrate the typical reflex in that particular branch, and when it seemed important, even in a particular language. Few listed items can be followed through all the six identified families of the AA phylum, so sometimes more than one example was selected so as to cover all or most of the families; at least one example illustrates the initial reflexes, and another (or more) the medial and/or final reflexes.

The following preliminary remarks should be taken into consideration:

1.2.1. The total number of known AA languages and distinct dialects is to be counted in the hundreds. Thus it was obviously impossible to illustrate in this short sketch the reflexes of the PAA phonemes in all of them. As stated above, I have only selected representative cases, but we have often more detailed information at our disposal. Among other things it was seldom possible to consider the different positional changes, especially important in some of the AA families but occurring everywhere – least of all in Semitic, see 1.2.3.

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7. The phoneme which in this book is conventionally rendered as PAA *ǯ seems not to have been the usual ǯ-type palato-alveolar fricative; on this see in more detail in Chapter 2. The present chapter had already been written when Olga Stolbova, not having had any information of my conclusions, reported to me from Moscow that according to her own Chadic data the whole ǯ-series (i.e. š, č, ç̌, ǯ) was not palato-alveolar fricative. At present I think the /ǯ/ was actually a palatalized or frictionless alveo-dental continuant [ɹ].

8. Other rules of consonantal incompatibility, usually specific for individual languages, are here not taken into account.

1.2.2. The phonological system of the proto-languages of the six established constituent families of the AA phylum differed but slightly from the PAA phonological system. Indeed, there are clear indications that changes from the PAA type of phoneme to a new phonetic realization must have occurred, in many cases, as late as inside the already separated branches of the families (e.g. inside the Agaw branch or the East Cushitic branch in Cushitic, inside the Angas branch, the Bolewa branch, the Northern Bauchi, the Southern Bauchi, the Ron branch, the Ngizim branch in Western Chadic, inside the Southern Central branch or even inside Aramaic of the Northern Central branch, in Semitic).

1.2.3. Owing to the specific role of the triconsonantal roots in Semitic, where vowels are semantically subordinate, and to the necessity of keeping clear the semantic and formal correlation betwen the different derivative patterns in words and word-forms, there are hardly any consonantal phonetic changes in Semitic word-formation which are due to position; a consonantal phoneme is, with very few exceptions, the same whatever its positional situation. That, however, as noted above 1.2.1., is not the case in other AA families, more especially this is certainly not the case in Cushitic languages.

1.2.4. Most pharyngeal and laryngeal consonants (also velar affricates) being lost or reduced in languages derived from PAA, they nevertheless usually leave traces of their former existence on the phonetic manifestation of the neighbouring phonemes. Thus, in Berber, PAA **b* is reflected differently depending upon the absence or presence of pharyngeals, *x* and velar affricates in the original root, and the same is very typical also of Chadic, where, moreover, Ç is not necessarily < PAA *Ç, but may be the reflex of PAA *(H -V)C or PAA *C(VH). Thus, the emphatic (implosive, glottalized etc.) consonants *ḅ*, *ḍ*, *ç* are often the reflexes not of PAA **ṗ*, **ṭ*, **ç*, but those of PAA **bVH* etc. (*H* stands in the present context for "any phoneme of the laryngeal/pharyngeal series"). Not seldom is "emphasis" transferred from the first to the second consonant in the root or vice versa. On the specific rules of incompatibility of emphatics in Akkadian see in Chapter 3.

In this short review it was impossible to take into account these and numerous other cases of complicated reflexation, which has its positional or other specific linguistic reasons: only the simplest examples were included.

On root-complements see Chapter 4. We have tried to keep them out of our list, but a few cases will be noted.

1.2.5. There is a curious phenomenon, not at all foreign to other languages of the world (although they have not been specially investigated there), but very typical of AA and especially of Arabic. It consists of using acoustically similar but genetically and phonologically unrelated roots for expressing similar meanings, usually with such connotations as "the same but more so/less so", and many others of the same character. For such cases of acoustical and semantical but not phonological proximity we suggest the name "maizelisms", in honour of the Semitist who was the first, at least in Europe, to devote special attention to them.[9] This is a specific means of multiplying word

9. See Maizel 1983. The Arabic term is *ʔibdaːl al-ḫuruːf*. The not uncommon irregular interchange of roots with /ʃ/ and with /ɣ/ noted by the Czechoslovak school, are actually "maizelisms".

formation devices under the conditions of the rigourousness of the Arabic consonantal root system and the scarceness of affixal means of word-formation. Examples: Arabic *ðrr ~ θrr* 'scatter, spill', *lðʕ ~ lsʕ* 'sting, bite, abuse', *bzq ~ bṣq ~ bsq* 'spit' and hundreds of others.

It goes without saying, that "maizelisms" cannot be included in a comparative vocabulary of Afrasian languages (or any other languages), if we want to keep to the necessary strictness of comparison. Nevertheless, the awareness of their existence is useful.

1.2.6. Except for a few cases, we have restricted our list of examples to roots represented **in Semitic** and in at least two or more non-Semitic AA languages. Some reflexes have now been reliably established from the internal evidence of the non-Semitic individual language families, but that could not in all cases be attested by our sample list, owing to this restriction.[10]

In cases where the root is represented in many or all languages of the family, we have limited ourselves to a few characteristic examples illustrating the typical reflexes.

1.3. The families of the phylum.

The data for the different constituent families of the AA phylum are not all of the same quality. The reflexes between the different Semitic languages have, except for a few details,[11] been reliably established a century ago and present no particular problem.

1.3.1. Western Chadic has been thoroughly studied from the comparative point of view by O.V. Stolbova in the USSR and by a number of scholars elsewhere, among whom H. Jungraithmayr and P. Newman should be mentioned in the first place. We have now at our disposal also files for Eastern Chadic, which, however, could not so far be used for the purposes of this book. Therefore Eastern and Central Chadic have been here compared in a rather rule-of-thumb way, and these languages rarely appear in our sample list, although their affiliation to the AA phylum is certain.

1.3.2. The morphological and phonological classification of Berber has now been satisfactorily clarified by Alexandra Aichenwald and Alexander Militarëv (published only in part). Not always reliable are the comparisons with the various Cushitic and Omotic languages.

1.3.3. There exists a *Comparative Historical Phonetics of Cushitic Languages* by A. B. Dolgopolsky, a book which has been decisive for our team's and my own resolve to go ahead with the *Comparative Historical Vocabulary of Afrasian*. However, our practical work has revealed that D.'s comparisons are not always rigorous, that his tables of reflexes are in some parts compiled without sufficient proof etc., so that the work must actually be done over again. Nevertheless, as a first approach towards a Cushitic

10. Hence the word "usually" applied in the list to reflexes for some phonemes. It does not mean we don't know the reflexes, but often it simply means that we have omitted the enumeration of non-typical reflexes in some dialects, and for positional variants.

11. I am referring to the phonemes PAA **ṗ*, **ŝ* and **ĉ* which have been established by A. Yu. Militarëv (published only in part).

reconstruction, the book retains its importance. The recent work of H.-J. Sasse on Eastern Cushitic includes too few items, whereas the detailed study on South Cushitic phonetics by Ch. Ehret includes too many items vulnerable from a semantic point of view. Even the existence of Cushitic as a single family is open to grave doubt, although its affiliation to AA has never been seriously questioned (see Hetzron 1980). Our knowledge of Cushitic is steadily increasing, cf. the work of D. Appleyard, A. Zaborski, a.o.

1.3.4. Dolgopolsky regards Omotic as a part of Cushitic, which is no longer tenable in view of the works of Fleming (1969) and M.L. Bender (1975). Our knowledge of Omotic is in a state of flux.

1.3.5. Egyptian being the sole language of its family, I cannot reconstruct a proto-stage of that family. The best I can do is to establish the earliest phonological system of Egyptian itself as attested in the written texts. This is at least three to five thousand years later than the chronological level at which the proto-dialects separated from the original dialectal continuum (which I conventionally term Proto-Afrasian) and the contact between them was lost.

1.4. Subdivisions.

Note the probable subdivision into branches of the languages quoted in the short list below, inside their constituent families of the AA phylum. In the list itself the subdivisions are not specially noted. It is mostly languages occuring in the sample list for PAA phonemes in 1.5. that are included below:

(1) **Semitic**: I. Northern Peripheral: Akkadian; Eblaite (?); II. Northern Central: Eblaite (?), Ugaritic, Amorite (Old stage), Phoenician, Hebrew (Middle stage); IIa: Aramaic (Middle and New stage); III. Southern Central: Arabic. Note that some of the (IIa) and (III) dialects have never completely lost contact, and therefore sometimes a linguistic-geographical approach rather than the methods of genealogical and glottochronological techniques are applicable to them. The same caution is valid also for a number of close dialect groups in the other parts of this list; IV. Epigraphic South Arabian (ESA): there are several dialects, but they are quoted indiscriminately below; V. Ethio-Semitic, Northern group: Ge'ez, Tigre, Tigrinya (Tigrai); Va. Ethio-Semitic Southern group: Amharic, Harari, a number of the dialects of the Gurage groups; VI. Southern Peripheral (= Modern Southern Arabian, MSA): Mehri, Harsusi, Jibbali, Socotri; according to A.Yu. Militarëv, perhaps the earliest group to separate from PS, along with Akkadian.

(2a) **Berber**: I. Northern: Shilḥ group: Semlal, Aksimen, Ntifa; Tamazight group: Izayan, Izdeg; Zenatiya group: Figig, Iznaṣen, Menaser, Riff, Seghrushen, Senhazha, Snus, Shauya, Wargla, Nefusa, Sened et al.; Kabyle group; II. Eastern: Ghadames, Siwa, Sokna, III. Tuareg: Ghat, Ahaggar, Ayr, Taneslemt, East Tawlemmet; IV. Zenaga dialects.

(2b) **Guanche**: consisted of several dialects. To be grouped with Berber.

(3) **Cushitic**: I. **Northern**: Beja; II. **Eastern**: (a) Saho, Afar, Somali, Rendille, Oromo, Bayso, Konso et al.; (b) "Rift valley languages": Hadiya, Kabenna, Kam-

batta, Sidamo et al.; (c) Yaaku (Mogogodo); III. **Agaw**: Bilin, Khamir, Awngi, Khamta, Kwara, Kemant; IV. **Southern**: Iraqw and associated dialects; Asa, Qwadza; Dahalo.

(4) Omotic: unclassified. Ometo group of dialects (Chara, Wolamo, Haruro); Kaficho, Mocha; Anfilla, Bworo, Gimirra; Yämma.

(5) Egyptian: no subdivision, although appreciably differing dialects certainly existed throughout the history of Egyptian. The latest stage is called Coptic (with several dialects).

(6a) Western Chadic: I. Hausa, Gwandara; II. Angas branch: Angas, Sura, Gerka, Montol, Ankwe; III. Bolewa branch: Bolewa, Bele, Karekare, Tangale, Galambu, Gera, Gerume, Ngamo, Pero; IV. Bauchi North (Warji), Djimbin; V. Bauchi South (Zar) branch: Burrum, Buli, Dwot, Gedji, Guruntum, Kir, Polchi, Sayanchi, Zar; VI. Ron branch: Bokkos, Daffo-Butura, Fyer, Kulere, Sha; VII. Ngizim branch: Ngizim, Bade.

(6b) Central Chadic: not classified. Chibak, Ga'anda, Gisiga, Glavda, Gulfei, Logone, Mandara, Margi, Masa, Tera et al.

(6c) Eastern Chadic: not classified. Dangla, Kaba, Kera, Mobu, Mubi, Nanchere, Sokoro, Somrai, Tumak, etc.. Chadic should be perhaps classified as a superfamily inside the AA phylum.

On mainly grammatical grounds families and superfamilies (1), (2a), (2b) and (3) are classed as Northern Afrasian (NAA), while (5) and (6a-c) as Southern, or Transversal Afrasian (SAA). The place of (4) is uncertain.

On lexical grounds (2), (5) and (6a-c) are classed together as the BChE group.

1.5. Sample vocabulary list:

1.5.1. Labials:

***p**:

(1) Semitic: Northern *p*, Southern *f*.
(2) Berber: *f*.
(3) Cushitic: mostly *f*.
(4) Omotic: Mocha *p̄*, some dialects of Ometo *p*, others as < PAA **f*.
(5) Egyptian: *p*.
(6) Chadic: *p* or *f*, according to the dialect.

Examples: ***pad* > **pdy/w*, **pyd*** 'ransom': (1) Akk. (?) *pdy* 'to spare' [only in the expression *la: pa:diy-* 'merciless' (one who takes no ransom?)]; Ugaritic *pdy* 'to ransom, to liberate'; Hebrew *pdy* 'to ransom'; Arab. *fdw/y* to liberate, to ransom somebody (from captivity)', *fada:-n*, *fida:-n* 'ransom'; Ep.S. Arab. *fdy* 'to repay, to redeem'; (2) Ahaggar *əffəd* 'to lend, to borrow'; (3) Iraqw *fa:r* (2nd p. sing. *fät-*, pl. *fädan-*) 'to count': (4) Ometo *fayd*, *payd*; Yämma *fa:d*; Kaficho *had*(*d*); Mocha *padi* 'to count', (6) Hausa *fi:dá*: 'the money which a woman, whose marriage has been annulled, has to repay to her ex-husband' (< Arab.?); Tangale *pad-*, *pat-* 'to buy', *pede* 'to ransom, to liberate'.

pVṭVs 'flattening tool': (1) Aram. *paṭṭi:š-*; Arab. *fiṭṭi:s-* 'hammer' *fṭs* 'to beat flat'; (5) Eg. *pds* 'to beat or tread flat'. The following examples from (2) have usually been rejected as coming from Arabic, but the chance of borrowing a word for 'hammer' and the spread of the word to different Berber dialects makes it probable that the word may be original in Berber: Riff *ta-fdis-t*; Ahaggar *a-fədis*; Tawlemmet *ta-fa:ḍis* 'hammer'.

pḤḳʷ > ***pḳʷ*** 'husk, bark, shell': (1) Akk. *pia:q-* 'to be thin, narrow'; Aram. (Syr) *pq?* 'to husk'; Arab. *faq?* 'membrane on head of embryo'; Amharic *faqä* 'to scrape off, to prepare leather'; (2) Ahaggar *efəffəγ* 'covering membrane of palm trunk; paper'; (3) Qwadza (Ngomvia) *pa?uko*; Dahalo *páḳ-o* 'bark'; (4) Ometo *foq* 'to tan leather' (< Ethiosem.?); (5) Eg. *p?ḳ* 'flat and thin' (< *pḳ?* ?); (6) Angas *pok* 'to husk, to skin' et al.

pəg I 'a cut': (1) Arab *fǯǯ* 'to cut open the ground by ploughshare'; (5) Eg. *pg?* 'to cut down, to kill (an enemy)'; (6) Tumak *pog* 'to cut down, to fell'.

pəg II 'strain, stretching, drawing': (1) Arab. *fǯǯ* 'to draw the bow'; (2) Kabyle *a-fəgag* 'stretching-beam of weaving-loom'; (5) Eg. *pǯ* 'to draw (a string)', *pǯ-t* 'bow', *pg?* 'to open wide, to draw out, to spread, diffuse'; (6) Hausa *fi:ga* 'rapidly unsheath sword'.

dVp > ***dpy/w***, ***dup***, ***dp-n*** 'to push, to throw': (1) Hebrew *dpy* 'to push'; Arab. *dfy* 'to press a wounded enemy to the ground'; Harsusi *do:fa* 'to push, to (re)pay'; Amhar. *däffä* 'to throw on the ground, to rape (woman)'; (3) Somali *daf* 'to break into (house), to gate-crash'; (4) Kaficho *dup* 'to throw; to leave'; (6) Hausa *dá:fà* 'to press (hand to the ground)'; Sura *túp* 'to push'.

dap 'tracing, following, hunting': (1) Harsusi *däfdäf* 'search'; (2) Ayr *dəfənduf-ət* 'try to grasp, catch'; (3) Hadiya *da:p* 'to investigate'; (4) Yämma *dup̄* 'to hunt'; (5) Eg. *dp-w* 'the (trailing) steering-oar'; (6) Sura *tap* 'to chase'; Bolewa *ḍapp* (< ***da?p***) 'to follow, to chase'; Karekare *da:f* 'to follow'.

pVč 'urine' see under ***č***.

sVp 'river' and ***sVpVr*** 'message' etc. see under ***s***.

ṗ:

(1) Semitic: Northern *p*, Southern *b*. This phoneme early became unstable, hence sporadically also > *f* in Southern Semitic, > *b* in Northern Semitic (the number of the latter exceptions is small).
(2a) Berber: *b*; (2b) Guanche: *p* (?).
(3) Cushitic: Northern *f*, Eastern (a) usually *b*, (b) *-ṗ-*, Agaw *f-*, *-b-* (but *-ṗṗ-* > *-ff-*), Southern *p*.
(4) Omotic: Kaficho, Mocha *ṗ*, others uncertain.
(5) Egyptian: *p*.
(6) Chadic: *ḅ*, *b*, *ṗ* and *p* in the various groups. Note that *ḅ* (except *ḅ-* < *ṗ*, e.g. in Hausa) is usually from a labial + laryngeal etc.

Examples: ***ṗəc̣*** > ***ṗi̯/u̯c̣***, var. ***bi̯c̣*** 'egg': (1) Akk. *pe:ṣ* 'white'; (Hebrew *be:ṣ-at*; Aram. *bi:ʕ-at-* from var. ***bi̯c̣***); Arab. *baiḍ-* 'egg', *ʔa-bya:ḍ-* 'white'; (2) Siwa *ta-bəṭau-*

t 'egg'; (3) Awngi *fučča/i* 'white' etc.; (4) Ometo *boça* 'white'; (5) Eg. *p?š* 'pellet'; (6) Polchi *m-bùše*, Sayanchi *mbuŝ* 'egg'.

ṗər* > *ṗ?r (?) 'mouse'; (1) kk. *peru:r-u:t-*; Arab. *birr-* 'mouse'; (2) Semlal *a-bərr-an* 'polecat'; (5) Eg. *pn* (< **p?n* < **ṗir-n-*?) 'mouse'; (6) Hausa *bé:rá:* 'mouse'; Tumak *bə:ra:ŋ* 'mouse'.

***ṗrg*^{w}** 'joint; flex, bend': (1) Arab *burš* 'joint of middle finger'; (2) Ahaggar *bərḡ-əl* 'to be in-toed'; (2a) Gomera *pirgu-an* 'nervio central de la hoja de la palma'; Gran Canaria *pírg-ano* 'flexible twig'; (3) (?) Oromo *bargaʔa* 'to spread (legs, tree branches)'; (5) Eg. *p?g* (< *ṗrg*?) to squat' (uncertain), *p?š* 'knee'; (cf. *p?d*, *pd*: Medicine texts; Book of the Dead, etc. which seem to be later forms, i.e. **prg* > *p?š* > *p?d* > *pd* ?); (6) Musgu *paragu* 'arm'.

ṗVč 'serpent': (1) Ugaritic *bṯn* 'serpent'; Hebrew *patn-at-* < Aram *patn-* 'cobra', (late) *pitn-* 'viper'; Arab. *baθan-* 'serpent' (all from **ṗač-n*); (2) Senwa *buš* 'serpent, snail, insect; to crawl'; (3) Somali *ábeso* 'kind of serpent'; (6) Glavda *púšà* 'viper with black and white stripes'.

taṗ* > *tṗy 'dagger, chisel': (1) Arab. *tbb* 'to cut off'; (3) Hadiya *tab-ačaʔe* 'knife'; (5) Eg. *tpy* (sign of dagger) 'first and foremost'; (6) Hausa *má:-tá:bí* 'kind of chisel'.

b:

Usually > *b* in all families of the phylum; a few Cushitic and Chadic dialects devoice **b* > *p*, as well as the other voiced plosives.

Examples: ***bVṭn̲/*bVnVṭ*** 'navel, belly': (1) Hebrew *baṭn-* 'belly, womb'; Aram. *biṭn-* id., *bṭn* 'to become pregnant'; Arab. *baṭn* 'belly'; (2) Semlal *a-buḳ* 'navel'; Ntifa *a-buḳ* 'belly; lower part of pot'; Tawlemmet *tə-bu:ṭ-ut* (*-ṭ- < -ṯṭ- < -nṭ-?*) 'navel'; Ntifa *i-biniḳ* 'navel';(5) Eg. *bnd* 'difficult delivery; abortion'; (6) Angas Sura *ḅut* 'belly', Fyer *ḅuto* 'stomach'; Buli *bindi*; Sayanchi *m-but-ux* 'stomach, belly'.

bVk*^{w}*Ḥ 'pregnancy (of cattle)': (1) Arab. *bk?* 'to give little milk', also: 'to have little water (of well)'; (2) Ahaggar *buk-əm* 'to be in heat (of female quadruped)'; (3) Oromo *ba:kku*: 'not giving much milk'; (5) Eg. *bk?* 'to become pregnant'.

bV*^{w} > *bky/ʔ*, *bʔk 'raining, weeping': (1) Akk. *bky* 'to weep'; Ugaritic, Hebrew *bky* 'to weep'; Arab. *bky* 'to weep over, to lament'; Mehri *bek*, Socotri *béše* (*-š- < *-k-*); Ge'ez *bky* etc. 'to weep'; (2) Snus *t̲-biša*, *t̲-bixa* (< **-bika?*) 'rain'; (3) Somali *bokk*; Oromo *bokaʔa* rain', Bilin *bək*^{w}*ana* 'cloud'; Kemant *buk*^{w}*ana* 'to rain'; (6) Hausa *bì:ko* 'rain after sowing'; Mubi *ḅok* (< **b*V(*^{w}*)) 'to rain, to pour'.

***ṭVb*'trickle of water': (1) Arab. *ṭbṭb* 'to murmur (of water)'; Ge'ez *ṭäbṭäbä* 'to drop (of water)'; Gurage group *ṭäb balä* 'to drop'; (2) Ahaggar *əṭṭəb* 'to drop (of water)' *é-ṭṭâb* 'downpour'; (3) Saho, Afar *dimbi* (< **ḍibb-*) 'drop'; Oromo (*ḍe:b-*) *ḍe:bu* 'thirst'; Hadiya *ṭe:be*: 'thirst'; (5) Eg. *dby-t* 'a drink, beverage'; (6) Somrai *tuba*; Nanchere *tibi* 'humid'.

f:

(1) Semitic: Northern *p*, Southern *f*.
(2) Berber: *f*.

(3) Cushitic: usually *f*.
(4) Omotic: *f* (also > *h*); in Ometo – as < PAA **p*.
(5) Egyptian: *f*.
(6) Chadic: usually *f* (Hausa > *f*/*h*; some dialects *p*).

Examples: ***fəṭ* > ***fṭy*** 'to tear (up), to break': (1) Arab. *fṭ?* 'break'; (3) Beja *fədi(y)* 'to split, to separate'; Oromo *fiṭa* 'to finish off, to destroy'; (4) Ometo *peḍ* 'to tear'; (5) Eg. *fdy* 'to pluck out (hair)'; (6) Hausa *fáttà* 'to tear up'.

fû* > ***f?l*, *fl? 'sorcery, fortune-telling, magic': (1) Hebrew *pl?* 'to make wonders'; Aram. (Syriac) *pellel-t-* (< **pil-pil-t- ?*) 'dictum, symbol, mystery', (Judaic) *pil?-* 'wonder'; Arab. *f?l* 'foretell good fortune'; ESA *f?l* 'to wish evil'; Ge'ez *fa:l* 'prophecy, prediction'; (2) Kabyle *a-s-fəl* 'kind of magic practice (?); Ayr *afəl* 'to be immunized (against disease)'; (3) Saho, Somali *fa:l* (as in Ge'ez; borrowed to or from Ge'ez?); Rendille *falo* 'chief sorcerer'; Hadiya *fa?l* 'to become a deceiver, to trick'; (?) Bilin *fa:l* 'to will, to be able' (modal verb; also *fa:l* 'prediction', from Ge'ez?); (5) Eg. *fnn-wy* 'magical word, curse'; (6) Bolewa *ful* 'to abuse'.

taf 'dye-plant': (1) Arab. *tifa:f-* 'Euphorbia, spurge'; (3) Oromo *tu:fo*: 'kind of weed with yellow flowers'; (5) Eg. *tftf* 'Lawsonia inermis, henna'; (6) Hausa *tàftaf* id.; Ngizim *taftaf* 'Cochlospermum tinctorium'.

1.5.2. Dentals:

***t*:**

Usually > *t* in all families and branches (but, e.g., in some Chadic **ti-* > *či-*, **t-* > *-d-*); *-*t* sporadically > *-d*, e.g. in Eastern Cushitic Somali (but *-tt-*); the final morpheme *-at* frequently > *-a*: (but *-d* in Somali).

Examples: ***taf*** 'plant supplying dye' see under ***f*.**

***tak*^{w}~** 'to crush, to trample': (1) Akk. *tkk* 'to be depressed'(?); Hebrew *to(:)k(k-)* 'oppresion'; Arab. *tkk* 'to trample'; (2) Ahaggar (T-stirps) *tək-ət* 'to hammer'; (4) Kaficho *tuk* 'to hit with fist'; (5) Eg. *tkk* 'to be aggressive, to cross the border'; (6) Hausa *tá:kà* 'to tread upon something, to trample'; Daffo-Butura *tuk* 'to push, to butt'; Gisiga *tukwa-haŋ* 'to clap one's hand'.

tVl* > *tu̯l*, *tlw 'hill, heap': (1) Akk. *ti:l-*; Ugaritic *tl*; Hebrew *te:l* Aram. *tell-* 'mound, ruins': Arab. *tall-* 'hill(ock)'; (2) Izdeg *talwi* (< **tlw*); Tawlemmet *tattaula* (< **twl*) 'ascent'; (3) Somali *tu:l-* 'to heap'; Oromo *tu:lla* 'heap, pile', *tullu*: 'mountain'; Sidamo *tull-o*: 'mountain'; (4) Yämma *tu:l* 'to heap' Mocha *tull-o*: 'heap'; (6) Hausa *túlúwá*: 'mountain top'.

fət* > *fu̯/u̯t 'to rub': (1) Jibbali *fett* 'to wipe oneself with small stones after excreting'; (4) Kaficho *hut* 'to smear'; (5) Eg. *ftt* 'to erase'; (6) Sura *fe̱t*, Angas *fet* 'to weep, to wipe off', Angas *fwot* 'to scratch the ground like a fowl'.

***ṭ*:**

(1) Semitic: *ṭ* (uvularized in Arabic, glottalized in South Arabian and Ethio-Semitic, in the latter possibly under Cushitic influence).
(2) Berber: *ḍ* (but *-ṭṭ-*).

(3) Cushitic: Northern, Eastern *ḍ*, *ḍ*, *d*; also *ṭ*; Agaw *d* (but still **ṭ* in the Old Agaw as shown by borrowings into Ge'ez); Southern Cushitic *t*. (4) Omotic: Kaficho, Mocha, Gimirra *ṭ*, others uncertain.
(5) Egyptian: *d*.
(6) Chadic: Hausa, Angas branch, Bolewa branch *t*- (but -**ṭ*- > -*ḍ*- in Bolewa, Karekare, Gera, Tangale, Ngamo; Galambu -*z*-, Geruma, Kirfi -*t*-); Northern Bauchi branch: Warji, Cagu, Siri *ṭ*-, others *t*; Southern Bauchi branch mostly *t*, Ngizim, Bade *t* (but *d* in roots with second voiced consonant). Before *i* and sometimes *u* frequently > *ǯ*.

Examples: ***ṭVr*** 'to drive (off, away)': (1) Arab *ṭrr* (u) 'to drive (somebody) in front of oneself'; Jibbali *ṭrr* 'to run blindfold, without aim'; (5) Eg. *dr* 'to drive away'; (6) Hausa *tárè* 'to fend off'; Ga'anda *tìre-tà*; Boka *tirè-tə* 'hunting'.

ṭəč* > *ṭč?/y*, *ṭwč 'defecation, fart'; (1) Arab. *ṭθ?* 'to defecate'; (2) Ahaggar *əmmə-ḍəs* 'excrements'; (3) Somali *ḍus*, Oromo *ḍu:fa* (both from **ḍuč*-) 'to fart'; (5) Eg. *dws*, *dsy* 'to besmear, to abuse'; (6) Hausa *tú:sà* 'to fart'; Mubi *tučča* 'to shoot off (gun)'.

ṭali/u 'child, cub': (1) Hebrew *ṭåla* 'newborn lamb'; Aram. *ṭəli:-t-* 'girl'; Arab. *ṭilw-at-* 'newborn gazelle'; Ge'ez *ṭäli* 'goat'; (2) Tawlemmet *a:-ḍe:l* 'calf'; (3) Saho, Afar *ḍal/dal*; Somali, Oromo *ḍal* 'to bear (child)'; Oromo *ḍa:la* 'to inherit'; (6) Hausa *tá:lí-yó*: 'a young animal still following its mother'.

čVpVṭ 'intelligent', etc. see under ***č**.

****d***:

Preserved in most dialects, with some exceptions in Cushitic and especially in Chadic (**d* > *t*).

Examples: ****dm̥*, **dam* > *d?m*** 'blood: (1) Akk. *dam-* 'blood', *du?a:m-* 'blood-red'; Ugaritic *dm*; Hebrew *da:m-*; Aram. *dəm-*; Arab. *dam-* etc. 'blood'; (2) Semlal (and other Northern and Eastern dialects) *i-dam(m)-ən*; Zenaga *dəmm-ən* 'blood'; (3) Oromo *di:ma*: 'red'; Sidamo *da:ma* 'brown, reddish'; Qwadza *dimayi-* 'red'; Awngi *dəmmá* 'red'; (4) Kaficho *dam-o*:, Mocha *dam-o* 'blood'; (5) Eg. *dm* 'to curdle (of blood)'; (6) Angas *to:m:* Bolewa *dom* etc. 'blood'.

****dVkʷ*** 'to beat, to kill': (1) Akk. *dua:k-* 'to kill', *dik-t-* 'massacre, battle'; Socotri *dkdk* 'to beat'; (6) Gerka *tok* 'to kill'; Bolewa *duw*; Karekare *duk-* to beat, to kill'; Ngamo *eduk*; Tangale *tugo*; Bele *duk*; Kirfi *duɣw-* 'to kill'; Sha *duk-* 'to kill'; Kulere *duk* 'to beat'.

****ĉəd* > **ĉdy/w*** 'drawing out (rope), measuring': (1) Akk. *šdd* 'to stretch, to measure', *šidd-* 'measure'; (2) Kabyle *i-zdiw* 'to be long (of road)'; (5) Eg. *šd-w* 'a parcel of land'; (6) Hausa *sànda*: (< **ĉadd-*?) 'a (yard) measure of length'; Angas *lwe:t* 'stretching capacity of rubber'.

1.5.3. Sibilants:

****s***:

(1) Semitic: Northern *š*, Southern *s* (but see Chapter 2). .

(2) Berber: *s*, sporadically > *š*.
(3) Cushitic: usually *s*.
(4) Omotic: Kaficho, Mocha etc. *š*, otherwise not infrequently *s*.
(5) Egyptian: *s*.
(6) Chadic: *s* (usually before *i* > *š*, in some dialects this occurs also in other positions), Gerka *t*.

Examples: ***s**Vp* (probably ****səp***) 'river valley, beach': (1) Arab. *si:f-* 'river bank'; Jibbali *sif-t* 'beach'; (2) Semlal *ă-sif* 'small lake'; Ahaggar *ă-suf* 'valley'; (4) Zaisa *šafa*: 'rivulet, small lake'; (5) Eg. *sp-t* 'lip, brim, bank, shore'; (6) Ankwe *šip* 'river' (*š* < ***s** before *-i-* is regular).

s**V**p**V**r 'message, charge involving journey': (1) Akk. *špr* 'to send, to work', etc.: Arab. *sfr* 'to start journey, to bridle camel'; Jibbali, Socotri *sfɔr* 'to travel'; (3-4) the word *safar*, *safer* 'caravan, camp', also *safari*, well known all over northeastern Africa, is of uncertain origin but probably from Arabic; (5) Eg. *spr* 'to arrive (of royal decree etc.), to solicit'; (6) Ngizim *sàafə́r* 'to bring water from afar'; Higi *šivire* 'to go out'.

****səm***, 'name': see under ****m***.

****ʔəs***, ****H*ʷəs*** 'fire': (1) Akk. *ʔišaːt-*, Hebrew *ʔeːš*; Aram. *ʔišaːt-*, Ge'ez *ʔasaːt* 'fire'; (2) Ahaggar *a-həs* 'big fire' (*ʔ is in some cases retained as *h* in Tuareg); (3) Qwadza *saʔ* (metathesis?) 'to burn' (trans.); (5) possibly Eg. *ss* 'to burn down; ashes' (if it comes from *(*ʔi*)*siːs-* as reduplication); (6) Angas, Sura *wus*: Montol *ʾus* 'fire'.

š:[12] No certain attestations except in pronouns and causative markers:

(1) Semitic - Akkadian *š*, Hebrew *h*, Southern Semitic *ʔ-*, *-h-*, *-s#*.
(2-3)-(5-6) Berber, Cushitic, Egyptian, Chadic *s*.
(4) Omotic - uncertain.

Except for the pronominal stem(s), only the following example may with some probability be assigned here:

****b**V**š*** > ****bšy/w/ʔ***. The semantics of the words which may, by any margin of possibility, be ascribed to this root, ranges between: 1° 'being, existence, belonging'; 2° 'come or bring into being, to do, to make'; 3° 'to beget, to sow'. Cf. the following: (1) Akk. *bšy* 'to be, to exist'; *buːš-* < *bušy-* '(personal) property'; Amorite *bsy* 'to be, to exist'; Arab. *bhy/w/ʔ* 'to be well shapen, comely', *baːh-* 'coition'; (2) Ghadames *əbbəs* 'to sprinkle, to sow'; (3) Kemant *boːs* 'to beget'; (4) Ometo, Kaficho, Mocha *buš-o* child; (5) possibly Eg. *bsy* 'to introduce'; (6) Bolewa *bos-un* 'to sow'.

ś:

(1) Semitic: Epigraphic South Arabian *ś*, Akkadian *š*, Hebrew *š-*, *-s-* (?), Aramaic *ś* > *s*, Arabic, MSA, Ethiopian *š*.
(2) Berber: usually *s*, but also *š* attested.

12. [s̠] or [ɹ] a non-frictional dental-alveolar continuant. See n. 7 above and Chapter 2 below.

(3) Cushitic: Northern *š*, Eastern *s*, Southern *ŝ*.
(4) Omotic: mostly *š*.
(5) Egyptian: *-š-*, *-s*.
(6) Chadic: Hausa *z-*, *-l-*; Angas, Bolewa *l*, Bauchi dialects *ẑ-*, *-l-; -ŝ-*, *-ẑ-*, *-l-*; Ron dialects *l*; Ngizim *ẑ*. No established Semito-Chadic reflexes for the medial position.

Examples: ***ŝab*** I 'to join together': (1) Arab. *šbb* 'to tie fast'; Ethio-Sem. *šibo* 'wire'; Amhar. *šbb* 'to tie, to bind'; (2) Kabyle *šebbeb* (< Arab.?) 'to cling to'; Ayr, Tawlemmet *e-sabb* 'any climber plant'; (3) Somali *sab* 'a wattled receptacle for a clay vessel'; (5) Eg. *šby-t* 'necklace'; (6) Hausa *zúbì* 'setting up the wattle for weaving'; Bolewa *loḅḅ-* (< **ŝəb?-*); Margi *ẑavu* 'mat'.

ŝab II > ****š?/wb*** 'to mix, to knead': (1) Aram. *s?b* 'to soil'; Arab. *šwb* 'to mix'; (3) Beja *ša:wi* 'to add, to mix something with'; (5) Eg. *šbb* 'to mix, to knead'; (6) Bolewa *lomb*; Tangale *lamb* (both < **ŝabb-*) 'to mix, shuffle'; Warji, Kariza *laḅə*; Pa'a *ẑabu* 'to knead dough'.

ŝaʕ 'cow, bull; meat': (2) Ahaggar a.o. Tuareg *t-êsu-t* 'cow'; *êsu* 'bull', *isa-n* 'meat' (all with a prefixed complement **ya-*, possibly metathesis?); (3) Beja *ša?*, *ša?-b* (both masc.!) 'cow', *ša?* (fem.) 'meat'; Saho *sa?a* 'cow', Afar *sa:ʕ* 'cattle'; Somali *saʕ*; Sidamo *sa?a:*; Iraqw *ŝe* etc.. 'cow'; (6) Ngizim *ŝa* 'cow'; also in Central and Eastern Chadic.

ŝam, *ŝam-ŝ(am) 'burning sun': (1) Akk. *šamš-*; Amorite *sams-*; Hebrew *šamš-*; Aram. (Syriac) *šemš-*; Arab. *šams-*; ESA *šmŝ* (the latter two with dissimilation); Tigre *šämš* 'sun'; Jibbali *šum* 'sun-heat'; Socotri *šam* 'sun, day'; (2) Ntifa *u-sm-an*, Ndir *i-ssim*, Figig *usəm*, Ahaggar *e-ssam* 'lightning'; (5) Eg. *šmm*, *š?m* 'to be hot, burning'; (6) Angas *lem* 'sun'.

****XVŝ*** > ****Xy/wŝ, *Xŝy*** 'stretching (out of hand)': (1) Akk. *xyš* (T-stirps) 'to deal out (food)': Aram. (Palm.) *ḫsy* 'to endow, make a donation' (*ḫ* < [x]); Arab. *xwš* 'to take'; Harsusi *xa:š* 'to stretch out (hands); (2) Ahaggar, Ayr, Tawlemmet *əqqəs* 'to clap one's hands; to slap in the face' (semantically dubious); (5) Eg. *xwsy* 'to move hand'; (6) Kulere *gul* 'to take'.

****ḫʷaŝ*** 'being bold on guard, hiding, seeking shelter': (1) Arab. *ḫšy* (TD-stirps) 'to beware (of), be careful'; Tigre *ḫäšša* 'beware' (but Ge'ez *ḥa:sa* irregular); Modern Southern Arabian dialects *ḥa:še:*, *háše*, *há:ša* 'beware!, far be it!'; (2) Ayr, Tawlemmet *əwəš* 'to be preoccupied, troubled, etc.'; (3) Somali *ḥas-* 'to conceal, to hide'; (5) Eg. *ḥsw* 'a spell for protection against water'; (6) Hausa *gállà-ba:* 'worry, trouble'.

1.5.4. Sibilant affricates (Cf. Chapter 2):

****c***:

(1) Semitic: traditionally *s* (/c/, see Chapter 2).
(2) Berber: *z*, in Auslaut possibly > *-s*.
(3) Cushitic: *s* (but possibly also other reflexes)
(4) Omotic: uncertain.

(5) Egyptian: *s* (Egyptological *ś*).
(6) Chadic: Hausa ç, Angas branch *s*, Bolewa branch **s-; -d-*, -č-; Warji *c*.

Examples: ****cH̱b* > **c?b*, **cb?*** 'drinking, sucking in': (1) Akk. *sa:b-* 'to draw water'; Aram. (Judaic) *sb?* 'to drink'; Arab. *s?b* 'to drink one's fill', *sabi:?-at-* 'wine'; (5) Eg. *sb-n-t* 'nursing mother, milch cow, suckling'; (6) Gisiga *soḫ* 'to drink out'; Kera *sóḫe* (both < **sab?*) 'to suck'; Migama *sob-* 'to drink'.

****cab* > **cb-r*** 'wall': (1) Jibbali *e-sber* to fence in'; Tigrai *säbsäb* 'small structure in the parents' house where the newly married stay'; Tigre *säbsab* 'roofed anteroom'; Amharic *səbsab* 'extension of roof'; (3) Afar *sabsab* 'wall'; (5) Eg. *sb-ty* 'wall'; (6) Hausa *càbá-ra*: 'wooden poles for reed screen'.

****caxʷ* > **cwx*, **cxʷy*** 'meadow': (1) Akk. *saxx-* 'meadow'; Arab. *saxa:x-* 'soft soil', *suwax-* 'swamp, mire'; Tigrai *säwḥi* (*ḥ* < *x*) 'meadow, pasture'; (5) Eg. *sx-t* 'field, arable land'; (6) Logone *sxe:*, Buduma *čúi* 'field, arable land'.

****dac*, **dic***, 'flint knife, cut': (2) Wargla *ti-me-diaz*; Mzab *ti-mə-dias* 'scissors' (cf. Nefusa *tə-mə-ṭiaz* etc. id., from variant **ṭic*); (5) Eg. *ds* 'flint, knife'; (6) Hausa *dá:cà* 'to cut'; Zeem (dialect of the Zar group) *ducə* 'to kill'; Sokoro *désidési* 'cut'.

****č***: (cf. n. 7):
(1) Semitic: Akkadian traditionally transcribed *š*, cf. Chapter 2; Ugaritic *θ* (conventional transcription), Hebrew *š*, Aramaic *t*, Arabic *θ*, Ge'ez *s* (< **č*), Modern South Arabian *θ*.
(2) Berber: *s* (before *i*), *t* (before *a*) (< an affricate), some dialects possibly *š*.
(3) Cushitic: usually *s-*, Oromo *f* (medial position uncertain).
(4) Omotic: *s-* (medial position, uncertain).
(5) Egyptian: *s* (**čC* may be expected to yield **tC*).
(6) Chadic: Hausa č-, *-s-*; Angas, Sura č-, *-š-*; Bolewa č, Bauchi North mainly č, Bauchi South č, š, Ron č-, *-š-*, *-s*, Ngizim č-, *-s-*.

Examples; ****čVpVṭ*** 'intelligent, crafty, making the best decision': (1) Akk. *špṭ*; Ugaritic *θpṭ* 'to judge'; Hebrew *špṭ* 'to settle controversy, to judge', *šo:pæ:ṭ* 'intertribal chief, arbitrator, judge', Latin *su(f)fetes* < Phoenician **šu:pæ:ṭ* 'consul in Carthage'; Ge'ez *sfṭ* (A-stem) 'to deceive'; Tigrai *s/šfṭ*; Amharic *šfṭ* (D-stem) 'to deny, to cheat'; Gurage dialects *šfṭ* 'to deny, to become a rebel'; (2) Ahaggar *sufəḍ* 'to guide, to show the way'; (3) Oromo *š/saffaṭ* 'to deny having received something' (< Sem.?); (5) Eg. *spd* 'to be skilled, dexterous, adroit'; (6) Hausa *čàffata* 'to volunteer one's allegiance', *čá:fàče*: 'dishonestly take away corn'.

****čən*** 'two': (1) Akk. *šin-a:*; Ugaritic *θn*; Hebrew *š(ə)n-a:yim*; Phoenician (')*šn-m*; Arab. *?iθn-a:ni*; ESA *θn-y* 'two'; (2) Semlal *sin*; Ahaggar *əssin* (f. *sən-at*); Ghadames *sen* etc. 'two'; (3) Bilin, Kwara *säna:*; Kemant *sa:na*: 'like, being alike'; (5) Eg. *sn* 'two'; (6) Gisiga *čen* 'two'.

****čəṭ*, **čH̱ṭ*** 'to smell'; (1) Arab. *θ?ṭ* 'to have bad smell'; (3) Burunge *ču?ud* 'to smell'; (5) Eg. *m-sd-t* 'nostril'; (6) Angas *čet*; Sura *čét* 'to smell'.

****ṭəč*** 'to defecate' see under ****ṭ***.

****ĉ/ǯ***:

(1) Semitic: Akkadian *š*, Ugaritic *š*, Hebrew *ś*, Aramaic *ś* > *s*, Arabic *š*, ESA *ŝ*, MSA *ŝ*.
(2) Berber: *z*.
(3) Cushitic: Somali *ɖ-*, Agaw *š*, Southern *ŝ* and probably *ĉ*; other languages have no established reflexes.
(4) Omotic: *š*, at least in Kaficho.
(5) Egyptian: *š*.
(6) Chadic: Hausa *s-*, *-š-*), Angas branch *l-*, *-s-*, Bolewa branch *s-*, *-ɖ-* (but still *ŝ-* in Pero), Bauchi North and South *ŝ-*, *-ŝ-*, *-ẑ-*; Ron dialects *l-*, *-s-*, Ngizim like Bauchi North.

The evidence for the reconstruction of the PAA phonetic realization is not clear enough; the only thing that can be stated is that PAA **ŝ* and **ç̂* are different phonemes; we have preferred **ĉ* to, for example **ẑ* for systemic reasons. It is quite possible that the opposition voiced/voiceless was irrelevant for the lateral affricate (as is also the case with emphatics, see Chapter 3). This may also be the reason for the absence of a separate voiced affricate in the lateral subsystem, which seems to disrupt the otherwise symmetrical phonological system.

ĉVf 'lip': (1) Akk. *šap-t-*; Ugaritic *šp-t*; Hebrew *śa:p̄at-*; Aram. *sip-t-*; Arab. *šaf-at-* 'lip'; (3) Iraqw *ŝufi*; Qwadza *ŝifi-to* 'lip'; (5) Eg. *yšf* (< **šif*) 'foam, saliva on the lips'; (6) Sura *liip* 'tongue'.

ĉar 'cutting, sawing wood': (1) Hebrew *ma:-śôr* 'a saw'; Arab. *n/w-šr*; Mehri *wu-ŝor*; Jibbali *ʔŝr*; Ge'ez *w-šr*; Tigre, Tigrai *šršr* 'to saw'; (3) Somali *ɖir-ti* 'timber (but also 'trees', doubtful); (6) Hausa *sá:rá*: 'to cut (trees), to split (wood)'; Gisiga *ŝar* 'to adze'.

ĉaʕar 'hair': (1) Akk. *ša:r-t-*; Hebrew *śe:ʕa:r*; Aram. (Syriac) *saʕr-*; Arab. *šaʕar-*; Socotri *ŝáʕihor* (pl.); Ge'ez *šəʕər-ət* 'hair'; (2) Semlal *a-zzär*; Seghrušen *a-zzar*; Ahagar *ă-zzər* 'hair' (all from **-ĉʕar*); (3) Somali *ɖa:r* 'tuft of hair, cock's comb'; (6) Hausa *çó:ró*: (*ç* < **ĉʕ-*) 'tuft of hair', *çá:rìya* 'hair'.

****gʷəĉ*** > ****gʷi̯ĉ***, ****gʷĉy/ʔ*** 'coming and going; roaming with herds': (1) Arab. *ǯš*ʔ 'to change place, pastures (of a tribe)'; ESA *gyš* 'party, group of men, army'; Socotri *geŝ* 'to herd'; Ge'ez *gys/š* 'to set out early' etc.; (2) Semlal *əggʷəz* 'to descend' (from another root?); Ahaggar *əggəz* 'to come after someone has departed'; Zenaga *a-guzzi:h* 'flock of sheep'; (3) Somali *ga:ɖ-* 'to reach, to be on guard'; Kemant *gešeš* 'pasture'; (4) Kaficho *gaš* 'to drive (cattle), to pasture'; (5) Eg. *gwš* 'to turn away, to abandon'; (6) Hausa *gúšè* 'pass away', *gúšì* 'progress'.

****ç̣***:

(1) Semitic: traditionally *ṣ* (but see Chapter 2).
(2) Berber: *ẓ* (but *-ṣṣ-* in reduplication; in some dialects *ṣ-* also initially).
(3) Cushitic: uncertain, see below under **xʷəç̣*.
(4) Omotic: see below under **xʷəç̣*
(5) Egyptian: *ǯ* (Egyptological *d̲*).

(6) Chadic: Hausa ç, Angas *s*, Bolewa branch *s-*, *-t-*, *-š-*, Bauchi North ç- (also č, *-ṣ-*) Bauchi South *c*, *s*; Ngizim *z-*.

Examples: ***ç**V**p** > ***ç**p**w**/**y**, ***ĉ**?**p** 'clean': (1) Arabic *ṣfw* 'to be clear'; Mehri *ṣo:fi* 'clear'; (2) Kabyle *əṣfu* 'to be clean, clear'; Shauya *ṣəfi* 'to clear', *ṣf-an* 'to be clear (of water)' (< Arabic?); (6) Hausa *çáf* (also *çáb*, apparently < **çaṗ* < **ça?p*) 'to be absolutely clean'; Sayanchi *cop* 'to wash'; Daffo-Butura *sapa* 'to clean'; Hona *cəbə* 'to wash'.

***ç**V**b**V**ʕ** 'finger': (1) Ugaritic *?uṣbʕ*; Hebrew *?eṣbaʕ*; Aramaic *ṣebʕ-*; Arabic *?iṣbaʕ-*, etc. 'finger'; (5) Eg. *ǯbʕ* id.

***çaf** > ***çf?** 'grain food':(1) Arab. *ṣafa:-n-* 'ear of grain'; (3) Hadiya *čufu* 'food made of millet and oil', *čufčufu* 'a kind of food';(5) Eg. *ǯf?* 'food'; (6) Hausa *çáçáfá:* 'wheat cakes eaten with honey'.

x*ʷ*əç 'leaf': (1) Akk. *xuṣṣ-* 'reed hut'; Aramaic *ḥu:ṣ-* 'palm leaf; hut of leaves and branches'; Arab. id.; Socotri *xeṣ* 'leaf';(3) Oromo *giččo:* 'kind of grass-like, bushy plant'; Khamir *xaṣa:* (Reinisch), *xača* (Appleyard); Kwara *aša:*; Awngi *9uči*; Konso *haša*; (4) Ometo Kullo *hayca*; Gimirra *aisi*; Anfilla *e:čo*, *e:ǯo* 'leaf'; (6) Hausa *gà:çi-kà* 'young leaves of baobab; young or dwarf baobab' (*-k* class marker for trees).

***č**: (cf. note 7)

(1) Semitic: Ugaritic, Arabic, ESA ***θ** > *ḏ*, Aramaic *ṯ*, other Northern *ṣ* (in the traditional interpretation; see Chapter 2), MSA *ḏ*.

(2) Berber: *ɖ* (before *i*?), elsewhere *ẓ*; *-tt-*()?

(3) Cushitic: uncertain; seems to depend on position and stress.

(4) Omotic: *-č-*, *č-*.

(5) Egyptian: *-ǯ*.

(6) Chadic: Hausa *ç; č* preserved in Siri (Bauchi North), *č-*, *-ɖ-* in Bolewa, Ngizim, otherwise *č*, *š*, *c*. NB ***nč-***, as well as ***nç-*** and ***nĉ-*** yields ***nǯ*** > ***ǯ*** in some languages).

Examples: ***čab**(**i**) 'antelope': (1) Akk. *ṣabi:-t-*; Ugaritic *ẓby*; Hebrew *ṣəbi:*; Arabic *ḍabi-* 'gazelle'; (2) possibly Ahaggar *a-ẓuba-ra* 'boar' (as taboo-word, *-ra* is an old morph of animal names?); (3) possibly Khamir *ciba* id.; (5) Eg. *ǯbn-w* (< **čb-l*?) 'kind of antelope'; (6) Tumak *n-ǯobyo* 'antelope'.

kəčṯ 'fat': (1) Arabic *kuḍr-* 'kidney fat'; (2) Wargla *a-šəṭṭar* 'fat' (*š* < **ki-*); (6) Hausa *kice*; Ngamo *šiḍar* (< **kičar*) 'fat'.

çVl 'dark': (1) Akk. *ṣill-* 'shade'; Hebrew *ṣill-* 'shadow'; Aram *ṭəll-*, *ṭəla:l-*; Arabic *ḍill-*; Ge'ez a.o. *ṣəlal-* 'shade, shadow'; (2) Semlal *i-ḍili* 'black'; Ahaggar *əḍlu* 'to be green and profuse (of vegetation)'; (3) Bilin *çaläla* 'shadow'; Awngi *car-ka* 'black'; Bayso *çar-id-o* (< **çVll-*) 'green'; Oromo *dall-ača* id.; (4) Ometo *čilila* 'green'; Yämma *čir-o* (< (**çill-*); Gimirra, Benesho, She *çil* (*čil-*) id.; (6) Angas *ǯil* (< *ṉ-çil-*?), Sha *čalâ* 'shadow'.

çər** > ***çṛr**, ***çrw 'flint, hard stone, rock': (1) Akk. *ṣurr-* 'flint, obsidian'; Hebrew *ṣu:r-* 'rock', *ṣo:r* 'flint, flint-knife'; Aramaic *ṭu:r-* 'mountain, rock'; Arabic *ḍirr-* 'sharp

flint'; ESA *ẓwr* 'rock, bed-rock'; (2) Kabyle *a-ẓru* 'rock', *i-ẓra* 'flint'; Ahaggar *a-ẓəru* 'rock'; (4) ? Oromo *č̣ir* 'to cut, to incise'; (5) Eg. *nǯ?w* (< ***n-ǯr-w*) 'stone splinters'; (6) Hausa *ɕura* 'knife lacking handle'.

p*V*č̣ 'urine': (1) Arabic *faḍḍ-* 'horse urine or liquid from an animal's stomach for drinking in the desert'; (2) Ahaggar *tă-fəẓẓa* 'animal urine'; (3) Oromo *finč̣-an* 'urine'; (6) Hausa *fícá-rí:* 'urine'; Dangla *pidy* id.

ĉ̣:

(1) Semitic: Akk. *ṣ*, Ugaritic *ḏ* (traditional transcription; irregular), Hebrew *ṣ*, Aramaic *ʕ* (< *ɣ* < *û* < *ĉ̣*?); Arabic, ESA *ḍ*, MSA *ẓ̂*, *ĉ̣*, cf. Ch. 2.

(2) Berber: apparently *ẓ* before *i* but *ḍ* (*-ṭ(ṭ)-*) before historical *a* or consonant (?).

(3) Cushitic: Eastern Cushitic *ḍ* (Somali), *ḍ* > *d*, but Oromo also *-č̣(č̣)-* (positionally influenced?); Southern (Burunge et al.) *ĉ*;

(4) Omotic: *ç*, *č̣* (?).

(5) Egyptian: *ǯ*

(6) Chadic: Hausa *ç*, Angas branch *s-*, *-ḍ-* (etc.), Bolewa branch *ŝ-*, *s-*, *-ḍ-*; Bauchi mostly *ŝ*, but Cagu, Diri, Siri *ŝ*, Ron branch s-, Ngizim *ŝ-*.

Examples: ***č̣əf* > *č̣wf*, *č̣fw*** 'overflow; drop': (1) Hebrew *šwp* 'to flood'; Arabic *ḍfw* 'to overflow'; (2) Ghadames *ezẓəf* 'to weep'; Ayr *eḍf-əs*, Ahaggar *əṭf-əs* 'to be swollen with milk (of teat)', Ayr, Tawlemmet *ḍəf-əkk-ət* 'to overflow' may be from *ṭV*f*]; (3) Kambatta etc. *č̣effo* 'to imbue, to moisten'; Oromo *č̣afč̣aff-i* 'swampy place where too much water is accumulated'; (4) Kaficho *č̣afč̣af-o* 'to keep dribbling'; (5) Eg. *ǯf* 'drop' (e.g. of blood), *ǯfǯ* 'drop'; (6) Hausa *ɕáɕáfí:* 'spray (of heavy rain)', *ɕaɕafo:* 'to ooze (from the earth)'.

ĉ̣Vb?/ʕ* > *ĉ̣p̣ʕ*, *ĉ̣?b 'reptile, (small) swimming creature': (1) Arab. *ḍabb-* 'lizard', *ḍi?b-* 'kind of fish'; Jibbali *ẓ̂b* 'monitor lizard'; (2) Ayr, Tawlemmet *ta-ẓəbbe* 'kind of insect living in water'; (3) Burunge *ĉambeʕu*; Alagwa *ĉembeʕu* 'frog' (Ehret, p. 359); (4) Kaficho *ṭibb-o:* 'kind of waterworm'; Yämma *č̣opa:* 'kind of fish'; (5) Eg. *ǯb?-wtt* 'name of a snake'; (6) Hausa *ɕùmbe:* 'kind of frog'.

ĉ̣ẓ̂f 'to give hospitality to a stranger; to take a wife' (a term pointing to exogamic and intertribal relations): (1) Arab. *ḍayf-* 'guest', *ḍyf* 'to enjoy one's hospitality'; Jibbali *ẓ̂yf* 'to give hospitality', *ẓ̂i:f-t* 'hospitality; (town) wedding or funeral feast'; Socotri *ẓ̂ef*; Mehri *a-zyif* 'to give a marriage feast'; (2) Ayr *əṭṭəf* 'to marry'; (3) Iraqw ĉaway 'wives'; Qwadza *ĉap-* 'to pay bridewealth' (according to Ch. Ehret, < **ĉaṗ*; may it be a shift of the "emphatic" articulation, e.g. **ĉ̣af* > *ĉaṗ*?); (5) Eg. *s-ǯf?-try* 'oath of allegiance' (Š-strips; **s-ǯf?*, late); (6) Sura *mizẹ̀p*, Motol *mezep*, Gerka *medap* 'stranger' (all < **mis-saf*, *mis* meaning 'man'), Angas *musap*, Chip *məzẹp* 'friend', Angas *man-zap* 'bride'; Karekare *ŝapa*, Kirfi *nzàfè*, Pero *miẑivà* (*-v-* < **f-*) 'friend'.

ɾɕ̌ 'earth': (1) Akk. *ʔerṣ-et-*; Hebrew *ʔarṣ-*; Aramaic *ʔarʕ-* (< **ʔaryˁ-*); Arabic *ʔarḍ-* 'earth'; (5) Eg. *ʕʔʒ*[13] 'border between irrigated land and desert'; (6) Pa'a *riṣa*, Cagu *hiṣe*, Siri *rəṣu*, 'earth'.

ṗəɕ̌ 'egg', see under ***ṗ***

***ʒ**:

(1) Semitic: *z* (/ʒ/, cf. Chapter 2).
(2) Berber: *z* (*h* in Ahaggar).
(3) Cushitic: *z-* (?), *d-*(?). Uncertain, more material is needed.
(4) Omotic: uncertain.
(5) Egyptian: *z* (Egyptological *s*), later > *s*.
(6) Chadic: Hausa *z* (*ʒ* before *i*), Angas languages *š*, Bolewa languages mostly *z*, *ži* (Dera, Tangale zero, replaced sometimes by *w* or *y*, in accordance with the following vowel), Bele *h*; Bauchi languages mostly *z* but *ž*/*ʒ* before *i*; Bauchi South *z*/*ž*, *-s*.

Examples: ***ʒɑp*** 'time' (as in 'three times'): (1) Arabic *zaff-at-*; Jibbali *zəf-ɛ̱t*, pl. *mi-zfɔ̱r* (!) 'time, period'; (3) Sidamo *safe* (*s-* apparently regular < **z*) 'turn, time'; (5) Eg. *zp* 'time, once'; (6) Hausa *ʒè:fe:* 'bit, small portion'.

ʒVb 'plaiting, wattling': (1) Akk. *zibn-* (< **ʒib-n-*) 'reed mat'; Gurage group *zäbäz* (< **ʒabʒab*) 'kind of grass used for basketwork'; (2) Ghadames *ta-ziba* 'net used as a hairdress'; (6) Hausa *zú:bá:* 'basket'; Galambu *ʒìbá* 'mat'.

bəʒ > *bḫz 'to skin': (1) Hebrew, Aramaic *bzz* 'to plunder'; Arabic *bzz* 'to tear off one's clothes, to plunder'; (2) possibly Ghadames *ta-ßuz-t* 'knife'; (6) Pa'a *ḅuzu* (< **bʔz*); Jimbin *vaz* 'to skin, to flay'.

ž**: (cf. note 12 on ***š):

(1) Semitic: Akkadian *z*, Ebla *š* (renders a voiced equivalent of Arabic *θ* < **č*), Hebrew *z*, Aramaic *d*, Arabic, ESA and MSA *ð*. See Chapter 2.
(2) Berber: usually *z*, positionally probably also *d*.
(3) Cushitic: East Cushitic *d* (but borrowings into Ethio-Semitic point to an earlier **ž*), *z-*.
(4) Omotic: uncertain.
(5) Egyptian: *d* sibilants are attested in different dialects, especially medially.

Examples: **žəb* > **žʔb* (+ *-b*, morpheme of the harmful animal class) 'fly': (1) Akk. *zumb-* (< **zubb-*); Hebrew *zəbu:b*; Aramaic *dəbbo:b-*; Arabs. *ðuba:b-* etc. 'fly' (2) Ghat *a-zəbb*, Ahaggar *a-həb*, Taneslemt, Tawlemmet *ǐ-zəbb* 'a kind of fly'; Tawlemmet *ǐ-zabb-a:n* 'cicada; gadfly', *i-zamb-au-ən* (pl.) 'bees'; (3) Kambatta *zəmbib-ui-t* 'gnat, mosquito'; (5) Eg. *zb-t* 'parasite insects'; (6) Hausa *ʒíḅá:* 'small termitary'; Fali Gili *žìbi* 'fly'; Gudu *ʒaḅà-či* 'louse'.

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13. As established by A. Militarëv, Eg. **r* is often rendered by *ʕ* when the root also contains *ʔ*. Here the metathesis (*ʕʔž* < **ʔʕž* < *ʔɾɕ̌*) is due to the incompatibility tendency of *ʔ* before *ʕ* in Anlaut in early Eg. Other examples: *ʕʔm* 'Asiatic, Semite; Syrian slave' < Sem. **ʔaram-* (Akk. *ʔaram-*, Hebrew *ʔara:m*) 'Aramean' (also metathetical).

ʒVḳn̩/m̩ 'beard': (1) Akk. *ziqn-* 'beard'; Hebrew *za:qe:n* 'old man, elder'; Aramaic *diqn-*; Arabic *ðaqa:n-* 'beard', *ðiqn-* 'very old man'; (2) Ahaggar *tă-zγa* 'inner side of cheek'; (3) Somali *duq* 'old man'; Bilin *dəXna*, *dəẊna*, pl. *dəkən*, *dəḳən* 'old man'; (6) Angas *ǯam*, Sura *ǯaγam* (both < ***ǯaḳan-um*) '(your) chin'; Ngizim *ǯigènà* 'cheek'.

Hʷəǯ 'hearing': (1) Akk. *ʔuz-n-*; Hebrew *ʔo:z-än*; Arabic *ʔuð-n-* 'ear'; (3) Bilin *wa:s* 'to listen, to hear'; Khamir *waz*, *waǯ* (or *was*, *waš*) 'to hear'; (4) Ometo *waše:*, *wa:ye*, dial. also *wayci*, *wayzi*; Yämma *we:s* 'to hear', *waya:* 'ear'; Mocha *waǯǯi ḳa:-kko* 'ear-ring'; (5) Eg. *ydn* 'ear' (very early lost); (6) Jegu *ʔúdúŋe* 'ear'(?).

ǯəʔ (+ ***-b*** morpheme of the harmful animal class) 'animal eating carrion': (1) Akk. *zi:b-* (< *ǯiʔb-*) 'jackal'; Hebrew *zəʔe:b*; Aramaic *diʔb-*; Arab. *ðiʔb-* wolf'; Ge'ez *zəʔb* 'hyena'; Gurage dialects *zibbä* 'lion'[14]; (3) Beja *di:b* 'wolf' (< Arabic?), Sidamo *do:b-ičo*; Kabenna *zobb-o:* 'lion'; (5) Eg. *zʔb* 'jackal'; (6) Hausa *ǯíbǯíb-tà* 'griffon-vulture'; Ngizim *ǯíb-da* 'viverra'.

1.5.5. Velars (Note: all velars have labialized variants).

k:

(1) Semitic: *k*, except in some very late dialects (> *č*).

(2) Berber: *k*, but in some dialects *k(i)-* > *š*, *č* in Beja (> *ʔ* when not in the proximity of a laryngeal [ʔ]), medially mostly *-k-*, but in Eastern Cushitic often > *-g-*.

(4) Omotic: usually *-k* (in Kaficho-Mocha **-kk-* under certain circumstances > *-čč-*).

(5) Egyptian: *-ka-*, *k#*, but *ki* > *či*[15] (*Eg. č* is **always** < **k*).

(6) Chadic: mostly *k* but medially also *-g-* etc. Not uncommonly, it alternates with **kʷ*.

Examples: ***kahan*** 'knowing, cunning': (1) Hebrew *ko:he:n* (part.) 'priest'; Arab. *khn* 'to soothsay'; Jibbali *kuhun* 'cunning; cheat', *kóthən* (T-stirps) 'to be kept under pressure (of person), to be cunning, to malinger, to get what one wanted'; (2) Ahaggar *əkən* (< **khn*?) 'to arrange (well), to make/be perfect, to put in order'; (3) Beja *kan* (< **kahan*); Mogogodo *-gehen* 'to know'; (6) Hausa *yà-ḳ/kàna:* 'knowing what is right'.

kVr* > *kry/w 'kid': (1) Akk. *kerr-*; Hebrew *kar(r)-* 'lamb'; (2) several dialects *i-kəri*, *i-kru* 'ram'; (5) Eg. *čʔ* (< **kir*) 'fledgeling'; (6) Angas *ki:r* 'ram kept for fattening'; Dera *kwarà* 'goat'; Sayanchi *kərɔ* 'ram'.

sVkVn 'to be stable, to settle': (1) Akk. *škn* 'to put, to set, to make', etc.; Hebrew *škn* 'to settle, to lay'; Phoen., Aram. *škn* 'to inhabit'; Arab. *skn* 'to rest, to dwell'; Jibbali *skn* 'to dwell, to settle; to settle down, to calm down'; Harsusi *skn* 'to stay; to be stable'; (2) Ahaggar *əskən* 'to stand on hind legs'; (3) Iraqw *suknunu-ʔat-* 'to

14. This change in semantics is due to the idiom *šakin qu:lu*, lit. 'the voice is laid down', reinterpreted as 'silence obtained'.

15. In the pronouns, Eg. *č* is also derived from **ku* (< **kʷə*). Otherwise, the Egyptian phoneme /*č*/ seems always to be followed by /*i*/.

squat'; (5) Eg. *wsčn* (< **wV-sikin*) 'to travel freely, to be unhindered' (?); (6) Pa'a *siki* Jimbin *šinkə* Polchi *šók*; Dwot *suk* 'to sit'; Mbarmu *sìgìne* 'to rest'.

ʒVkn̰/m̰ see under ***ʒ***.

nək*(w) > *nyk*, *nky 'to copulate': (1) Common Semitic *nyk* id.; (2) Ahaggar *ənki* id.; (3) Beja *nekʷi* 'pregnancy'; (5) Eg. *nk* 'to copulate', (caus.) *s-nčy* 'to create'; (6) Mobu *nà:ngé* 'to sleep with somebody'.

kʷ:

Reflexes as for ***k***, but PAA ***ə* > *u*** in contact; some Semitic, Cushitic and Chadic languages have retained ***kʷ***.

Examples: ***kʷn̰* > *k^{w}*ny*** 'dog'; (2a) Gran Canaria *cuna* [kuna]; (3) Mogogodo *kwehen*(?) (4) Kaficho *kunano*; Ometo (Wolamo, Haruro) *kana* 'dog'; (5) Eg. *knm* 'an animal fighting with baboons' (dubious); (6) Fyer *kʷe:ŋ*, Mandara *kene:*; Dangala *kanya*; Jegu *kany* 'dog'.

kʷr̰* > *kʷry/w*, *kʷrh 'gloomy, grudge, anger': (1) Akk. *ku:r-* (< ***kurw-***) 'depression'; Aramaic *kry/w* 'to bewail'; Arabic *krh* 'to abhor'; Ge'ez *kʷərəh* 'reluctance'; (2) Ayr *əkwər* 'to offend, to curse'; (3) Khamir *kʷar* 'to be sad, irritated'; Awngi *kʷal* (< ***kʷar***) id.; Saho *kʷəray* 'to be sad, irritated'; (4) Kaficho *ka:r-* 'to be angry'; (6) Sura *kʷar* 'to hate'; Kera *kə́ráw* 'anger'.

nVkʷû 'cunning, crafty, harmful': (1) Akk. *nkl* 'to be skilful; to be perfidious'; Hebrew, Aramaic *nkl* 'to be cunning, crafty'; Arabic *nakal-* 'a skillful, experienced person'; Amharic *tä-nkʷäl-äɲɲa* 'cunning, sly'; Jibbali *nkl* 'to be cruel'; (2) Ahaggar *nəkəlwi* 'to be well off, to be in advantageous position'; (5) Eg. *nkn* (< ***nkl***) 'to harm'.

bakʷ 'weeping' see under ***k***.

dəkʷ 'kill' see under ***d***.

tak*(w)** 'to crush' see under ***t.

k̰:

(1) Semitic: *q* (transciption; actually occurs as uvular, pharyngealized, abruptive or glottalized).
(2) Berber: ɣ but *-k̰k̰-* (on the voicing of emphatics, see Chapter 4).
(3) Cushitic: Beja ʔ; Eastern Cushitic: Saho, Oromo, Sidamo *k̰* (sometimes *-g-* in Oromo), Somali *q-* and usually *-g-*; Agaw, in different dialects and positions *k*, *k̰*, *x* or *9*; Iraqw *q-*, *-x-*.
(4) Omotic: *-k̰*.
(5) Egyptian: *k̰*.
(6) Chadic: Hausa *k̰*, Angas and Bolewa branches *k* (some dialects *š*, *č* before *i*, medial *-k-*; Bauchi North *k̰*, Bauchi South, Ngizim *k-*.

Examples: ***k̰n̰* > *k̰ny/w*** 'begetting, giving birth': (1) Ugaritic *qny* 'to give birth to; (of mother of gods) to create'; Amorite, Hebrew, Aramaic *qny* 'to create'; ESA *qny* 'to beget'; Jibbali *qéní*; Socotri *qéne* 'to suckle, to bring up'; (2) Ahaggar *əɣnu* 'to begin, to originate (from), be native of, be created'; (3) Somali *qa:n*

'young of the cattle'; (4) Yämma *ḳo:n-* 'to beget'; (5) Eg. *ḳny* 'womb'; (6) Angas *kiin* 'to force out (of a woman in child-birth)'.

ḳVs* > ***ḳiṣ/c 'bone': (1) Arabic *qss* 'to take meat off bones'; (2) Common Berber ***i-γəs*** 'bone'; (3) Sidamo *mi-ḳiččo*, Werize *mi-ḳeče* 'bone'(!); (4) Gimirra (Nao) *ḳus*; Ari Banna (Dime) *ḳus* 'bone'; (5) Eg. *ḳs* id.; (6) Hausa *ḳàši:*; Bokkos *kyas*; Mburku *ḳaḳasə*; Kulere; Sha *gyiš-aw* (all Ron branch from***ḳiṣ***); Somrai *gussi-ŋ* 'bone'.

ḳal 'petty, light': (1) Akk. *qall-* 'light (of weight)', *qll* 'to despise' etc.; Hebrew *qll* 'to be quick, lightfooted; unimportant'; Aramaic, Arabic, ESA, Ge'ez *qll* 'to be light, small, little', etc.; (2) Ahaggar *γələl-ət* 'to be meagre, emaciated'; (3) Oromo *qal'o*: 'light, weak', *qalla* 'thin, slender'; (4s) Kaficho *ḳall-* 'to be cheap'; Mocha *ḳalli:* 'to despise'; (5) Eg. *ḳn* 'to lack; deficiency, harm'; (6) Hausa *ḳíl* adverb emphasizing smallness of size, quality; Kabas *ka:le* 'little'.

ṭaḳ* > *ṭḳy etc. 'to move quickly, to run': (1) Arabic *tqtq* 'to roll down, to rush forward'; (2) Ahaggar *təγiy-ət* (T-stirps) 'to quicken the pace'; (3) Somali *tag-* 'to walk'; (6) Hausa *tàḳa:* 'pace, gait', *tú:kà* 'to go away'; Dera *tako* 'to go away'.

wṛḳ 'green, yellow, gold': (1) Akk. *wrq*; Hebrew, Aramaic *yrq* (*y-* < ****w-***); Arabic *wrq* 'to be green, pale' etc.; (2) Siwa *a-ura:*γ 'green'; Ahaggar *a-ura*γ 'goldish, yellow'; (5) Eg. *y?ḳ-t* 'onion'; (6) Sura *b-irak* 'green'; Sokoro *érkeke-n* 'gall'.

***ḳ*ʷ**:

The relation of the reflexes of ***ḳ*ʷ** to those of ***ḳ*** is similar to that between the reflexes of ***k*** and ***k*ʷ**.

Examples: ***ḳ*ʷ*əl* > *ḳ̣ul*** 'call, voice': (1) Hebrew *qôl* 'voice, call'; Arabic *qwl* 'to say'. Cf. Akk. *qu:l* 'silence'; (2) Ayr, Ahaggar *ti-γəl-t* 'hard words'; (3) Iraqw *qwala* 'joy; Qwadza *ḳwa?al-iko* 'voice'; (6) Jegu *kol* 'to call' [Cf. also (3) Beja *?an-ḳʷil* 'ear' (*'an* < *ṇ/ṃ*); Somali *ma-qal* 'to hear'; (6) Angas *kalüng*, Sura *kəliŋ*; Karekare *kal*, Kirfi *kwálá* Galambu *kwâl*; [Fyet *hwalí* 'to hear'].

ḳʷad* > *ḳʷdy/w 'moulding': (1) Akk. *qadu:-t-* 'silt, mud, grout, plaster, gypsum'; (3) Oromo *ḳoda*: 'furniture, vessel, instrument' (belongs here if the original meaning was 'pottery'); Iraqw *qwori* (*-r-* may be < *-*d-*) 'adobe hut'; (5) Eg. *ḳd* 'to turn potter's wheel; to mould pottery; to build, to create'.

ʕaḳ̣ṛ + (***-b***, morpheme of the harmful animal class) 'scorpion; tick'. (1) Akk. *?aqr-ab-*; Hebrew *ʕaqr-a:b*; Aramaic *ʕĕqarb-*; Arabic *ʕaqr-ab-* etc. 'scorpion'; (2) common Berber ***iγurdəm***, pl. ***iγurdam*** (< ****i-ʕγur-d-am*?) 'scorpion'; (3) Bilin *ḳʷər?-ad-a:* 'tick' (*ḳʷər?* - metathesis < ****?əḳʷṛ*** < ****ʕaḳʷṛ*?); (6) Hausa *kwà:ro:* 'scorpion, any other small invertebrate'. The morpheme ***(a)d*** in (2) and (3) is difficult to explain (a word-compound or nominal classifier).

pḤḳ*ʷ** 'husk' see under ***p.

ṇḳ*ʷ** 'suckling' see under ***n.

*g:

(1) Semitic: g (only Arabic > $ǯ$).
(2) Berber: g (dialectally also $ḡ$, $ǯ$).
(3) Cushitic: mostly g, sometimes positionally > $ǯ$.
(4) Omotic: mostly g.
(5) Egyptian: g but $ǯ$ before i (and u?).
(6) Chadic: Angas branch k-, $-g$-, $-k$, otherwise mostly g. Very few common Afrasian roots beginning in *g have been attested, many alternate with *g^w.

Examples: ***gər*** 'fire': : (1) Akk. *girr-* 'deity of fire'; (2) Ahagar *ta-s-ḡər-t*, *ta-žžər-t* (*žž* < *zḡ* < *sḡ*); Ghat *ta-ǯər-t* (*ǯ* < **g*) 'amadou'; (3) Saho, Afar *gira*; Sidamo *gira:* 'fire', *gir-* 'to burn'; (4) Yämma *ge?a* 'fire' (doubtful; according to Dolgopolsky < **gičča* < **gir-ča*); (5) Eg. *ǯ?* (< **gir*) 'fire-drill'; (6) Hausa *gú:rà* 'to put fire to something'; Angas *kur* 'coal'; Sura *keur* 'ashes' (< ***g**^{w}**ər**).

dəg > ***dg-l***, ***dhg*** (!) 'intent look, aim': (1) Akk. *dig-l* 'look, eyesight', *dgl* 'to look (upon)'; Hebrew *dig-l-* 'sign, banner'; Aram. *dgl* 'to aim (shooting)'; Arab. *diǯ-l-* 'notable sight'; Jibbali *dhǯ* 'to look intently at something'; (3) Somali *díg-* 'to warn'; (5) Eg. *dgy/?* (< **dagal/r-*) 'to see, to look'.

*g^w:

Roots with g^w usually alternate with roots without labialization, and vice versa, see under *gər* above. No certain attestations in medial position.

Examples: ***g**^{w}**Vr***, ***gVr*** 'rolling, round, bent': (1) Akk. *grr* 'to turn, to roll over'; Arab. *ǯrǯr* (< **grgr*) 'to turn round (of a ring)', *ǯwr* 'to deviate (from the aim, road)'; Ge'ez *grgr* 'to roll'; Gurage dialects ***gurər*** 'sidewise, not in a straight line' (only in word-combinations), *a-g^{w}ärä* 'bent, crooked' [< **g*^{w}Vr or < (3)]; (2) Ghadames *egr* 'to warp, to mount a chain in a weaving-loom'; Kabyle *a-sə-gru*, *i-sə-g^{w}ra* 'movable handle of a hand-mill'; (3) Hadiya, Kambatta *goggara* 'bent, crooked'; (6) Hausa *gárà* 'rapidly rolling round object'; Angas *g^{w}ar* 'round spiral pattern'. [Presumably from the same root: (2) Rif *a-graw* 'assembly'; Tuareg *a-grur* 'stone-circle'; (5) Eg. *ǯ?ǯ?-t* 'assembly' (sitting in a circle, to distinguish from *ḳnb-t* 'council sitting in a corner')].

g**^{w}**əĉ 'roaming' see under *ĉ-.

***ṗṛg**^{w}* 'to squat' see under *ṗ.

*x:

(1) Semitic: Akkadian x, Hebrew, Aramaic $ḥ$ (spelling; actually x), Arabic x, Tigre x, etc.
(2) Berber: g.
(3) Cushitic: Saho, Afar, Somali $ḥ$, Agaw dialects x, otherwise usually h; medially perhaps $-Ø-$.
(4) Omotic: usually h or zero.
(5) Egyptian: $-x$ (> $\underline{h}$, $š$ in some positions, or depending upon period and dialect).

(6) Chadic: usually *g-* (< *γ-?); also *γ-*, *h-* in some dialects. Medially zero with emphatization of a neighboring consonant.

Examples: ***xy/wṭ*** 'thread; sewing': (1) Hebrew *ḥṭ* 'thread'; Aramaic *ḥyṭ* 'to sew'; Arabic *xaiṭ-* 'thread'; (3) Beja *ha:yid* 'to sew', *(h)ayid* 'thread'; Somali *ḥiḍ* 'to bind together'; Oromo *hiḍa* 'binding, string, rope; to tie, to bind'; *hoḍḍa* 'to sew, repair, weave baskets)'; [(5) Eg. *xnd* 'to bend, to twist (flower-stems *inter alia*)'; (6) Hausa *gwàndì:* 'a variety of cotton' from var. **xʷn̥ṭ*].

xVd > xdy 'flow of water': (1) Arabic *xadd-* 'rivulet'; Jibbali *xidéd* 'a narrow passage made by water running off'; (2) Ayr *tə-gədda* 'natural channel in the rocks; water-source'; (5) Eg. *xdy* 'to travel downstream', *m-xd* 'downstream'; (6) Hausa *gùda:dà* 'to flow; to well up'.

xl̥k '(worn) dress, rags': (1) Akk. *xula:q-* 'worn dress';Aramaic *ḥalu:q-å* 'underwear'; Socotri *ḥálaq* 'clothes'; (3) Beja *halak* 'rags, piece of cloth'; Afar *halago* 'rags'; Saho *ḥálága* 'clothes'; (6) Hausa *galko* 'kind of leather loin-covering'.

pṛx 'blossoming branch': (1) Akk. *perx-;* Hebrew *parḥ-* Ugaritic *prx*, Aram. (Syriac) *parḥ-* 'flower'; Arab. *farx-* 'offspring, nestling young one, branch (of tree)'; (2) Ayr, Tawlemmet *a-fărgăgga* 'palm-branch'; (5) Eg. *prx* 'to bloom'; *px?* 'kind of fruit (for fattening young bulls)'.

pax > *px?/y 'trap': (1) Akkadian *px?* 'to lock (door)'; Hebrew, Aramaic *paḥ(ḥ)-* (*ḥ* < **x*) 'snare for birds'; Arabic *faxx-* 'snare, net'; (5) Egyptian *px?* 'plank, plate; trap for birds'; (6) Angas *pe:*; Bolewa *f(a)*; Karekare *f-* 'to lock, to close'; Fyer *pa*, Daffo-Butura *voh*; Bokkos *vo*, Kulere *fu*, Sha *vu* 'to lock'.

xVr > *xry/? 'excrements, dregs': (1) Hebrew *ḥărа:ʔi:m* (pl).; Aramaic (Syrian) *ḥera:y-*; Arabic *xurr-*, *xary-* 'excrements'; (2) Ahaggar *ă-ḡərgər* 'a plant used as purgative';(3) Saho, Afar *haraa*; Somali *ḥaar* 'excrements'; Iraqw *húrônda* 'dregs in the brew of beer'.

dVxl̥ 'going down': (1) Arabic *dxl* 'to go in'; (5) Egyptian *dxn* 'to go down'; (6) Sura *ḍe:l*; Montol *del*; Polchi *ḍeli* 'to go (out).

***xʷ**:

Reflexes mostly as for **x* but with labialization of the consonant or the following vowel. Established examples of **xʷ*-roots usually alternate with *x*-roots.

xʷər*, *xər 'hole; to dig': (1) Akk. *xurr-* 'hole, cave', *xeri:t-* 'ditch', *xrr*, *xry* 'to dig'; Ugaritic *xr-t* 'grave'. Hebrew *ḥôr* < *xurr-* 'hole, cave';, Arab. *xurr-* id.; (2) Ayr *a-gírər*; Ahaggar *e-ḡerir* 'cavity in the ground made by water'; (3) Oromo *hura* 'to make a hole'; (5) Eg. *ḥr-nčr* (< **xir-; nčr* means 'god'), *xr* (late) 'grave, tomb'; (6) Hause *gú:rè* 'to dig, to go deep', Bolewa *gur* 'to dig'; Miya *γar* 'grave'. *sə-gər* "hole'; Siri *γəri* 'grave'.

xʷabḤ 'hoe (or part of it)'; (5) Eg. *xb?*, *xb-s* 'to hoe'; (6) Hausa *gwaḅa* 'to put a handle to the hoe" Gera *guḅa* 'handle of a hoe'; Bokkos *hùbeŋ* 'hoe'.

caxʷ, see under **c*.

X (=*k*+*x*):

(1) Semitic: *x*
(2) Berber: *k*
(3) Cushitic: Beja *h*, Southern *x*
(4) No reliable attestations
(5) Egyptian: *x*
(6) Chadic: Hausa, etc. *k*, Angas, Ngizim, Jimbin, Ron dialects *g*.

XVṗ̣ 'news, tradition, information, authority': (1) Hebrew *ḥbr* (spelling, read /xbr/ 'to find out, to seek to know'; Arab. *xbr* 'to be well informed, to know well'; Tigrinya *ḥbr* (cons.) 'to show, to prophesy'; Harsusi *xebo:r* 'to know, to ask for news'; (2) Ahaggar *tə-kubbir-t* 'good omen'; (3) Iraqw *xirif* (*f* < *ṗ*?); (5) Eg. *xpr* 'to come into being, to become, to happen', (š-stirps) 'to create';, (6) Hausa *kàḅarà* 'physically powerful man; one with great authority'.

***X*ʷ** (*k*+*x* labialized)

As in ***X*** with labialization of the syllable.

Examples: ***X*ʷ*ɱ/ṉ* > ***X*ʷ*ʔm/n*** 'kind of tree': (2) Ahaggar *akənkən* 'dum-palm'; (3) Bilin *kana* 'trees, wood'; Khamir *kan*, *ḳan*; Xamta *ḳan* 'trees'; Awngi *kani* 'tree, wood'; Beja *hundi* 'tree, plant'; Iraqw *xâano*, *xaaʔâno*, pl. *xaa'i* 'tree'; Agagwa *xa'imo*, pl. *xa'e:*, Burunge *xa'imo*, pl. *xa'i* 'tree'; (6) Pa'a *kwama*; Miya, Mburku, Kariya *kwam*; Jimbin *agwama* 'mahogany'; Ngizim *aguma-k* id.; Kera *kə́ŋàŋ* 'tree'

***baX*ʷ > *bʔX*ʷ** 'rot, decay': (1) Arabic *bʔx* 'to be spoiled (of food), to taste bad'; Ge'ez *bxʷbxʷ* 'to rot, decay (of food, bone, etc.)'; (2) Ahaggar *bəkut-ət* (T-stirps < **bəkut* < **b*V*k*ʷ*-t*) 'to be old and worn-out (of tanned or human skin)'; Ayr *a-bă̆kot* (< **bakʷ-t*) 'worn-out skin'; (5) Egyptian *bʔx* 'bad state of an eye' (of an eye exuding pus?); (6) Sura *bwak* 'to exude pus' (< **bʔX*ʷ).

[Note: to be distinguished from CAA **b*V*ḳ* 'rot'; (1) Akkadian *baqi:q-at-* 'rot (noun)'; Hebrew *bqq* 'to rot'; (2) Ayr *bəyuɣ-ət* 'to form blister (of an ulcer)'; (3) Somali *baq-* 'to get sour, rotten; to stink'; Oromo *buko* 'leaven, yeast'; Bilin *baq*ʷ 'to get sour' (Kwara *bo̲hʷ-* 'to be rotten, to smell bad' may belong to **baX*ʷ?); Iraqw *bonqa* 'bog'; Alagwa *buqama'i* 'excrement' (see Ehret, p. 138)].

X*ʷ*Vr* > *Xwr*, *Xrw 'to produce a noise, a call': (1) Arabic *xrr* 'to produce a noise (of bird, running water, etc.); to snore', *xwr* 'to bellow (of a bull)'; (2) Ahaggar *sə-kkərr-ət* (ST-stirps) 'to produce a *krkr*-sound (of tortoise, frog, dove, etc.)', *kur-ət* (T-stirps) 'to alarm, to call'; (3) Iraqw *xuray* 'rumble, roar'; (5) Egyptian *xrw* 'voice, noise'; (6) Hausa *kùru:wà* 'screaming, shouting (usually for help)'; Angas *gwar* 'to groan'; Miya *kwarar*; Kariya *kwar*, Jimbin *gwaral* 'to call, to cry'.

X̣ (*ḳ*+*x*):

(1) Semitic: *x*.
(2) Berber: usually ɣ.
(3) Cushitic: Beja *h*, Agaw *q* or *ḳ*, Southern ***X***, others uncertain.
(4) Omotic: probably *ḳ*.
(5) Egyptian: *-x*.
(6) Chadic: Hausa *ḳ*, Jimbin, Ron dialects *g*, others *k*, *ḳ*.

Examples: ***X̣ṃ > *X̣y/wm*** 'tent, hut, sunshade': (1) Arabic *xaym-at-;* Harsusi *xi:m-e:t*; Jibbali *xũi-ɛt*, pl. *xõ* 'tent, sunshade'; (2) Kabyle *a-xxam*; Ntifa *ta-ḥyam-t* 'village'; Ahaggar *ta-ḥyam-t* 'canvas tent'; Ayr, Tawlemmet *ta-ɣiam-t* 'canvas tent'; (5) Egyptian *xm* 'shrine, temple'; (6) Angas *kwom* 'a sort of porch in which the king sits, for coolness'; Kariya, Miya *ḳam;* Siri *ḳami* 'hut'.

X̣Vd > *X̣w/yd '(tribal) elite, elderman': (1) Jibbali *a-xbéd*, *xwd* 'to choose the best, the winner'; (2) Ayr *əɣyəd* 'to be disciplined, well educated'; (3) Beja *hada:ʔ-* 'to be old, to become a chief'; Bilin *qaded-*, *qided-* 'to be elder, respected; to be first', *qada:* 'priests'; (Somali *odey* 'old man, chief' may or may not belong here); (5) Egyptian *xwd* 'rich; rich man'.

X̣Vn > *X̣un 'hut, tent, home': (1) Jibbali *xan* 'hold (of a ship), any storage place'; (2) Ayr *a-ɣiwan* 'camp; home, hearth'; Ahaggar *e-ɣewən* 'small camping of nomads'; (5) Egyptian *xnw* 'resting place, abode '(6) Warǰi *ḳan-na*; Jimbin *gan* 'hut'.

nVX̣ > *nwX̣, *nX̣y 'rest, peace': (1) Akk. *nwx*; Hebrew *nwḥ;* Ge'ez *nwx* 'to rest, to repose'; (2) Ahaggar *nəɣiy-ət* (T-stirps) 'to be seated in a relaxed position'; (3) Oromo *naga:* 'peace' (correspondence uncertain); (6) Angas *nyok* 'rest; life'; Sura *nook* 'to rest'.

X̣Vç, *X̣Vc (last consonant unstable?) 'sand, gravel': (1) Akk. *xiṣṣ-* 'sand, gravel'; Ge'ez *xoṣa* id.; (2) Ahaggar *ta-ɣəzz-it* 'river bed, wadi' (? - cf. Common Berber **əɣəz* 'to dig out', Ayr *ta-ɣuz* 'subterranean mine sand-pit, quarry '); (3) Beja *ha:š* 'dust, earth'; Bilin *qu:ša:* 'sand'; Iraqw *xasa* 'valley or ravine without running water'; (4) Kaficho *ḳa:čo*, Gimirra *ḳačay*, *ḳač* 'sand'; (6) Hausa *ḳásá:* 'earth, clay, ground, sand' (dissimilation: **-ç-* > *-s-*).

X̣ʷ: as ***X̣***, with labialization of the syllable. No good attestations.

ʕ (g+x/ɣ):

(1) Semitic: ɣ, with development to ʕ in many dialects and subsequently to ∅ as for example in Akkadian (with coloring of the neighbouring vowel [a] > [e]).
(2) Berber: ɣ (a Berber ɣ not alternating with *-ḳḳ-/-qq-* is well attested).
(3) Cushitic: Southern *X*, *ʕ*.
(4) Omotic: uncertain.
(5) Egyptian: apparently *ʕ*.
(6) Chadic: Hausa *h-*, *-k-*?, Angas, Sura *g*, others uncertain.

Examples: ***ʕVn*** 'to hum, to sing '(1) Arabic *ɣnn* 'to sing, to speak through the nose'; Harsusi *ɣni* 'to sing'; Mehri *ɣenâi* 'song' ; (2) Ayr *ɣənun-əs*! (š-stirps) 'to hum, to sing in a low voice'; (5) Egyptian *xny* 'to play music' may be a "maizelistic" 'root variant.

ʕʷ:

as ***ʕ*** but with labialization of the syllable.

Examples: ***ʕʷr̲*** > ***ʕwr***, ***ʕrw*** 'to attack, to fight': (1) Arabic *ɣa:wara* 'to make a raid into another country', *ɣa:r-* 'army'; Harsusi *ɣwr* (š-stirps!) 'to raid, to attack'; (3) Iraqw *Xwar-*(?) 'to beat hard (person)'; Asa *har-* 'to punish'; (5) Eg. *ʕwʔy* 'to plunder'; (6) Hausa *hàra:* 'raid (in war)'(?).

baʕʷû 'genitalia; bastard' (1) Arabic *bɣl* 'to insult by calling "bastard"'; (2) Ahaggar *a-buɣelli* 'mulatto, bastard': (6) Hausa *bakarare* 'barren'; Bokkos *bwâl-ši*; Sha *bokol* 'womb' (all uncertain).

*ʕʷVr 'raven, crow '(+ *-b* suffix of harmful animals): (1) Akk. *a:rib-*; Hebrew *ʕo:räb*; Arabic *ɣura:b-*; Harsusi *ye-ɣere:b* 'raven' [Cf. Amharic *gura*, Gurage group *gure* 'crow'; borrowed from (3)?]; (2) Ayr *a-ɣrut* (< *ɣVrw-Vt) 'raven'; (3) Kemant *Xoraj*; Iraqw *Xwaʔari*; Burunge *Xwarariya*; Alagwa *Xororaʔi* (Ehret, p. 270); Alaba *qura*; Tembaro *qu:ra* 'crow'; (4) Kaficho *kureccoo* 'crow'; (5)? Egyptian *ʕbw* 'kind of bird with a loud voice '(possibly [*ʕʔb-w] < *ʕar-b- < *ʕ(ʷ)Vr-(V)b-); (6) Sura *gɔorɔo* 'crow'.

1.5.6. Laryngeals:

ḥ:

(1) Semitic: usually retained a *ḥ*, but Later Akkadian > ʔ (+ *e*), medially zero (V > *e*); late Hebrew > *x*, and some late Aramaic dialects > *x*.
(2) Berber: Tuareg *h-*, *-Ø-*, elsewhere *Ø*.
(3) Cushitic: preserved as *ḥ* in Saho, Afar, Somali, Iraqw; otherwise *h* (as in Beja), ʔ (as in Bilin), or *h/Ø*[16].
(4) Omotic: zero.
(5) Egyptian: *ḥ* (> *ḫ* before *i*).
(6) Chadic: has in most dialects, at least Western, apparently gone through the stage > *x > *ɣ; however, the reflexes are distinctly at variance with those for *x-: the development of PAA *ḥ and PAA *x seem to have been parallel but not simultaneous: Hausa, Bauchi South and Ngizim *g*, Angas branch ɣ (but *ḥʷ > *gʷ* in Angas); Bolewa dialects: *h-* in Karekare and Ngamo, others ʔ, *Ø*; Bauchi North dialects: Pa'a *ḥ*, Diri and Jimbin *Ø*, the rest: ɣ. Medially: Hausa, Ngizim, Bauchi South *-g-*, Angas and Bolewa branches: *Ø* (with emphatization of the neighbouring consonant); Bauchi North dialects vacillate between ɣ, *ḥ*, *Ø*.

Examples: ***ḥ̱w/y*** 'living': (1) Akk. *Ḥa:ia*[17] 'deity of subterranean waters'; Hebrew *ḥyy* 'to live, to revive', *ḥay* 'living'; Aramaic, Arabic *ḥyy* 'to live'; Jibbali *ḥe:* 'to be cured (of wound)'; (2) Ayr *əhu*, Ahaggar *iwi* 'to be born'; Tawlemmet *ă-s-əho* (denominative from š-stirps) 'native (of), born (in)'; (3) Beja *ha:y* 'to live, to be healthy', *hiyo* 'man, husband', Saho, Afar *ḥay* 'to live', Saho *ḥeaw* 'people'; Iraqw,

16. Dolgopolsky introduces a proto-phoneme ***ḫ***, but this is simply ***ḥ*** before *i*.

17. Spelled É.A; but É was used for *ḥà*, *hà*, and A also for [ʔa, a:y, ya] in Old Akkadian. The later pronunciation in Akkadian was, according to the Hurrian transcription *e-i-a-*, apparently [e:ia]. The final *-a* is the archaic morph of the absolute state, very often used with proper names.

etc. *ḥaw-ata*; Dahalo *ḥááyo* 'man, husband'; (5) Egyptian *ḥw* 'food' (semantically doubtful) ; (6) Buduma *aiyu* 'to live' (may belong to ***hu̯y*** as well).

ḥət* > *ḥi̯t, *ḥənt 'edible grain'; (1) OAkk. *ʔiṭ-at-* ([ʔiṭṭ-at-]?) 'a sort of grain'; Akkadian *ʔuṭṭ-at-* 'a grain (of barley)'; Hebrew *ḥiṭṭ-at-*; Aramaic *ḥinṭ-i:n*; Arabic *ḥinṭ-at-* 'wheat'; (3) Somali *ḥaḍu:ḍ* 'grain, sorghum'; Oromo *hanč-o:te:* 'edible tuber' (*nč-* < **-nṭ*); (6) Hausa *gùnḍu* 'Pennisetum typhoidæum (americanum)'.

ḥʷn* (or *ḥu̯n*) > *ḥnw 'camping, setting up a tent': (1) Hebrew *ma-ḥănä* 'camp', *ḥa:nu:-t*; Aramaic *ḥənu:-t-* (> Arabic *ḥa:nu:-t-*) 'shop'; Ge'ez *ḥano-t* 'vault, cell, prison '(hardly from **ḥnw* 'to bend'): (2) Ahaggar *ehən* 'tent'; Tawlemmet *ehăn* 'tent, home, family'; (5) Egyptian *ḥn* 'tent' (< **ḥʷin-*, **ḥun-*; cf. **ẋVn* 'hut'); (6) Hausa *gina* 'to build'; Pa'a *ḥwun*; Siri *wunu*; Jimbin *wan* 'to build, to plait'; Bata *han* 'to build'.

baḥ 'catching, taking hold of': (1) Akk. *bʔr* (*e*) 'to choose, to catch (e.g. fish)'; Hebrew *bḥr* 'to choose, to pick'; ESA *h-bḥr* 'to set aside, to earmark (animal as a sacrifice)'; (2) Ahaggar *a-bər* 'to take hold of (by hand)'; (6) Hausa *ḅágaːra:* 'a sort of fish-trap'; Sura *ḅe̲r* 'to take, to grasp'.

**bH̲ʷḥ* 'penis': (1) Arabic *bu:ḥ-* 'penis, pudenda'; ESA *bḥ-t* 'votive phallus' (?); (2) Ntifa *a-bubbu*; Ghadames *bəbb(u)*; Siwa *tə-bi:b-ət* 'penis' (< **bu:ḥ-bu:ḥ*) (5) Egyptian *bʔḥ* 'penis; before' (preposition).

**ʕ*:

(1) Semitic: Preserved in Old Akkadian, later ʔ (+ *e*), otherwise retained except for some late dialects.
(2) Berber: zero.
(3) Cushitic: usually preserved as ʕ in Bilin, Saho and Somali; in Iraqw preserved in medial position (as [7]) otherwise > ʔ (Beja, Bilin) or zero (seldom *-h-*).
(4) Omotic: zero.
(5) Egyptian: ʕ.
(6) Chadic: reflected initially: Hausa *g-*, Angas branch *h-* (but **ʕi* > *yi*!), Bolewa branch *h-*, *-ʔ-* or zero, Bauchi North ɣ- (but Pa'a *ḥ*), Ron branch *ʔ-*,*Ø-*, Ngizim *g-*. Apparently has in most branches passed through the stages **7* > *ġ* > *g* or ɣ; Pa'a *ḥ* is an unvoiced reflex of **ʕ* or **7*.

Examples: ***ʕal* > *ʕyl, *ʕly*** 'rise up' etc. (1) Common Semitic preposition **ʕalay-*, **ʕal(i)* 'on, over, about'; Akkadian *ʔel* 'to rise, to climb'; Ugaritic, Hebrew *ʕly* 'to rise, to be high'; (2) Ahaggar *ali* 'to be suspended'; (3) Saho *ʕal* 'mountain-top'; Afar *ale:* 'mountain'; Somali *ʕal* 'coastal mountainous region'; Sidamo *ila:la* preposition 'on, over'; (5) Egyptian *yʕr*, *ʕry*, Coptic *ale* 'to ascend'; (6) Angas *yal*, Sura *yaɣal* (metathesis from **ɣayal* < **ʕalay?*); Tangale *ʔil*; Geji *hilya* 'to stand up'.

***ʕalVHʷ*; metathetical variant *lVHʷVʕ** 'leaf, foliage': (1) Hebrew *ʕa:lä*; Aramaic (Syriac) *ʕelw-* 'leaf, foliage'; (2) Ahaggar *ela*; Ayr *ă-la*, pl. *i-la-tt-ăn* 'small leaves, foliage'; (3) Somali *ʕale:n*, pl. *ʕale:mo* 'foliage, leaf'; Iraqw, Alagwa *loʕi*, Burunge *lohiʕ-iya* 'leaf'; Dahalo *luʕ-* 'to produce offspring' (cf. Ehret, 1980:206);

(5) Egyptian *wʕn* 'kind of tree, juniper (?)' (semantically dubious); (6) Pero *alaw*; Jimbin *aluhu* 'leaf' (< **ʕ/ʔḷH*^{w}).

bûʕ 'throat': (1) Hebrew, Aram: *blʕ* 'to swallow, to gulp up'; Aramaic *ba:luːʕ* 'fish-hook', *ba:laʕ-t-* 'throat'; Arabic *blʕ* 'to swallow'; Ge'ez *blʕ* 'to eat'; (3) Beja *balaʔa* 'throat'; Afar *biliʔa* 'necklace'; (4) Ometo *bor-ka:*, *bär* 'neck' (*r* < **l*); (5) Egyptian *bʕn* 'neck'; (6) Angas *ḍel-m*; Fyer *ḍele-m* 'to lick'; Bokkos *bùlèʔ* 'craw, goitre'.

r*(V)ʕ** 'passing, moving' see under ***r.

1.5.7. Pharnygeals:

h:

(1) Semitic: *-h* is preserved in Old and Middle Semitic, including Arabic, but not including Akkadian (**h* > *Ø*). Mostly preserved also in late dialects.
(2) In Berber: *h* is partially retained, e.g. in Common Tuareg; in other dialects preserved sporadically, mostly yielding zero.
(3) Cushitic: preserved only initially in Somali and Oromo, (perhaps also in some related dialects) and Southern; medially sometimes preserved as *-ʔ-*.
(4) Omotic: zero.
(5) Egyptian: *h*.
(6) Chadic: initially preserved in Hausa, the Angas branch (where also γ-, *Ø*-); Bolewa branch *h-*, *ʔi-*; Bauchi North mostly preserved, Bauchi South mostly *ʔ-*; Ron dialects *h-* and *ʔ-*; Ngizim zero. Medially preserved only in a few dialects of the Bauchi and Ron branches. No clear external correspondences.

Examples: ***hab*** > ***hʔb***, ***w-hb*** 'giving, bringing, bearing': (1) Aramaic *y-hb*; Arab., Ge'ez *w-hb* 'to give'; (2) Ahaggar, Ayr *hub-ət* 'to drag, to pull along'; (3) Saho, Afar *ab-it* (reflexive T-stirps) 'to take (= give to oneself); Sidamo *ab-* 'to carry'; Hadiya *e:b* 'to bring'; Iraqw *huw-* 'to carry, to bring'; (5) Egyptian *hʔb* 'to send'; (6) Sura *hwóp*, *hóp* to lend, to borrow'.

h*V*w/y > ***hwy***, ***hʔy*** 'to fall, to fall upon': (1) Jibbali *he:* (< **hwy*) 'to fall, to swoop (of bird)'; Harsusi *hewo:* 'to fall (upon), to catch hold (of)'; (2) Kabyle *yaha*, *yuha* 'to start, to set out, to make fast'; Ahaggar *ihi* 'to fall, to fall upon '(Berber forms are metathetical); (3) Iraqw etc. *huʔ-* 'to fall'; Asa *huʔ-* 'to fall (of rain)'; (5) Egyptian *hʔi* 'to come down, to descend; to fall, to charge down upon enemy'; (6) Daffo-Butura *hay* 'to fall'.

huy > ***hʔw*** 'being, staying': (1) Amorite, Hebrew, Aram. *hwy* 'to be, to become';(2) Ahaggar *iha*; Ayr *iha* (intensive perfective) 'to be to stay (in)'; (3) Somali *ahay* 'to be' (link verb); Iraqw, Alagwa *hot-* 'to live, to dwell'; Asa *hut-* 'to stand still (T-stirps); (5) Egyptian *hʔw* 'neighbourhood, environment, belongings, affairs, time'.

dVh*^{w}*n 'fat': (1) Aramaic (Syriac) *du:ha:n-*; Arab. *duhn-* 'fat'; Tigre *dhn* 'to give butter as a gift or tribute'; (2) Semlal *ta-dun-t*; Ahaggar *t-âdən-t*; Tawlemmet *ta:-dhən-t*; Taneslemt *ta-dhan-t* 'fat (noun)'; Ghadames *ədβən* 'fat (adj.) '(*β* < **h*^{w}); (3) Khamir *diden* 'to be fat'; Khamta *didno* 'fat (adj.)'; (6) Sura *ḍóŋ* (< **duhn*) 'fat'.

**təʔn̥* 'fig, date': (1) Akk. *titt-*, pl. *ti:n-at-*; Hebrew *təʔe:n-at-*; Arabic *ti:n* 'fig (-tree)'; (2) Semlal *tiyni*; Ahaggar *təyne*; Taneslemt *tehəyne* 'date-palm'; (6) Sura *tiŋ* 'tree'; Angas *teung* 'fig-tree'.

*** ʔ**:

Semitic ʔ represents three diferent PAA phonemes: PAA *ʔ plosive, PAA **Ḥ* sonant, **Ḥ*^{w} sonant labialized. In the other families of the AA phylum (except the early stages of Egyptian, where Semitic ʔ > ʔ and *y-*) the phoneme ʔ is usually the reflex of some other, reduced PAA phoneme, the original PAA *ʔ having been reduced to zero.

PAA **Ḥ* functions in the same way as the other weak sonants *i̯* and *u̯*, but differs from them in developing into Semitic *aʔ*, Egyptian *(a)ʔ*, see in detail in Chapter 4; in Berber and Chadic, *ʔ and **Ḥ* are usually reflected by an emphatization (originally: glottalization) of the neighboring consonants. The details of this process are too complicated to be stated here.

PAA **Ḥ*^{w} develops into Semitic (ʔ)*u-*, Eg. *y-* (a single example; also other reflexes may be possible), Cushitic etc. *w-*; in Berber and Chadic it incurs changes similar to **Ḥ*, but accompanied by a labialization of the neighboring vowel (i.e., not only *ə* becoming labialized but also *a* becoming *u*). A similar result is achieved by *-H*^{w} in Inlaut. See also under *ɣ*. Examples would require a special treatise.

1.5.8. Sonants:

How the sonants operate in Afrasian will be the subject of discussion in Chapter 4. Here I shall only very shortly review the main reflexes:

The sonants can be divided into two groups: (1) the "weak" sonants **u̯*/*i̯*, *Ḥ* and *Ḥ*^{w}. In the process of desonantization they develop into **-aw-*, **-ay-*, *-aʔ*, *-uʔ-*/*-uw-* in Semitic, and apparently in Egyptian; the first two become **-wa-*, **-ya-* in Chadic (at least in many of the Chadic dialects), otherwise mostly > *-u:-*, *-i:-*, *-a:-*, *-u:-*; (2) the "strong" sonants **m̩*, **n̩*, **l̩*, **r̩*. The roots formed with "strong" sonants (possibly also with the weak ones, but this has not been established with any certainty) can have the patterns *S̩C, CS̩, *CVS, *SVC; in the two latter cases the sonant plays the role of a consonant (being non-syllabic). The pattern *S̩C may develop into **ʔa*SC, the pattern *CS̩ develops into **C*a*S*, and the patterns *CVS and *SVC develop in the same way as *CVC. However in nouns, in Semitic, Cushitic, Omotic and probably in Egyptian, the usual development of CS̩ is > C*a*S, but CVS, especially C*a*S, becomes C*a*SS. This fact is important for comparison and reconstruction.

We will omit here the weak sonants; the picture of their reflexes is hard to compress into a small number of examples. Initially, they tend to be lost; *w-* frequently interchanges with *y-*, often constituting a proclitic complement (see Chapter 3); **wa-* and **H*^{w}*a-* may develop into *ya-* or *ʔa-* or *ʔu-*, or *u-* etc. etc. As to the strong sonants, the development may be exemplified as follows:

***m**:

Well preserved in all families; in final position it becomes *-n* in some dialects. Note the very frequent word formation prefixes **mə-*, **ma-* (from the Common AA pronoun **ma*), which are well preserved in Semitic, usually as *mu-*, *ma-* (Akk. *mu-*, *ma-* but *na-* if there is a labial in the root; Hebrew *mə-*, *ma-* or *mi-* etc. etc.). In Cushitic and Chadic they are often deformed into **m̥-*, **n̥-*, *(?)in-*, *(?)on-*, *(?)an-*, *n̥-* etc. Sometimes they develop together with the next phoneme into a new consonantal cluster or even a new phoneme, as e.g. *ŋ*, ᵐ*b* etc.; *-mC-* sporadically becomes *-nC-* and even *-C:*.

Examples: ****n̥s***, ****məs*** 'night, late evening' : (1) Akk. *muš-*, *muši:-t-* 'night', *?ina*, *?amšat* 'yesternight'; Hebrew *?ämäš* id.; Arab. *?ams* 'yesterday', *masa:?-* (< **msy*) 'evening'; Ge'ez *məset* 'dark'; (2) Common Berber *mansaw* 'evening meal' (possibly, **masw* with a secondary *n*, but more likely from **əns* 'to spend the night'); (3) Beja *amas* 'evening, darkness, night'; Burunge *amasi* 'night', Qwadza *amasiya* 'tomorrow' (4) Mocha *mišo* 'midday meal'; (5) Eg. *msw-t* 'evening meal'.

****m̥Ḫw/y*** 'water'; (1) Akk. *m*, *ma:mu:* (pl.); Hebrew *mayim* (pl. or dual); Aram. *mayya:* (pl.); Arab. *ma:?-* 'water'; Ge'ez *ma:hwa* 'to become liquid'; (2) common Berber *a-ma-n* 'water' (or from **ham*, cf. Western Chadic); (3) Beja *mu?* 'liquid', *mi?-* 'to be liquid'; Somali *ma:y-a:d* 'tidal waters', perhaps also *mahi* 'running water', *ma-n* 'sea'; Iraqw *ma'ay*; Dahalo *ma'a* 'water'; (5) Eg. *my*, *my-w* 'water'; (6) Geji *maa*; (Western Chadic **ham*).

****mṵt*** 'death'; (1) Common Semitic **mwt* 'to die', **mṵt* > **mawt* 'death'; (2) Common Berber *əmmət* 'to die'; (3) Somali *mu:d* 'death' (5) Eg. *m(w)t* 'to die'; (6) Common Chadic **mut* 'to die'.

****mət*** 'man, husband' (1) Common Semitic **mut-*, W. Semitic also *me:t-* 'man, husband'; (5) Eg. *mt* (preserved only in the name of a hieroglyphic sign) id.; (6) Hausa *mùt-ùm* 'man'; Jegu *mito*, Dangaleat *miti* 'man' Sokoro *máti* 'man, husband'.

****səm*** 'name'; (1) Akk. *šum-*; Hebrew *še:m*; Arab. *?ism* (< **sim-*) 'name' (2) Common Berber *i-səm* (3) Beja *sim* 'name', *semi* 'to name'(possibly but hardly from Arabic) ; Bilin *šəŋ*, *səŋ*, Awngi *šuŋi* 'name' (hardly from Ethio-Sem.); (6) com mon Chadic **sum*, **sim-* 'name'.

****n***:

Well preserved in initial position, but very commonly assimilated to following consonant; hence any long or reduplicated consonant may by false etymology be perceived as a cluster **n*C, with the following treatment of the root as if containing a *-n-*. In final and some other positions **-n* often alternates with **-m*.

Examples: ****n̥f*** 'nose'; (1) Akk. *?app-*; Ugaritic *?ap*; Hebrew *?app-*; Arab. *?anf-*; Ge'ez *?a:nf*; Gurage dialects *ənfa* 'nose', same dialects *ăfʷ-at*, *anf-at* 'smell, breath'; (3) Saho *naf* 'breath, soul; (one)self' Somali *ne:f* id. and 'air' (5) Eg. *nf* 'fan', *nf-t* 'breath', *nf?* 'to blow (through nose)'. Cf. Common Semitic **naf-s-* 'soul; oneself'.

****n̥qʷ*** > ****y-nq***$^{(w)}$ 'suckling'; (1) Akk., Hebrew, Aram. *ynq* 'to suck (teat, udder)'; (2) Kabyle *anəɣ*, Ahaggar *əɲɣ* 'palate (of mouth)' (3) Beja *nu:gʷe*, pl. *nəgʷ*; Saho, Afar

angu 'female breast', pl. *angu:g*; Somali *nu:g-*, *nuǯ-* 'to suck' (from a variant **ŋg*^{w}, or directly from **nq*^{w}?); Dahalo *nu:ḳ-* 'to suck through a straw'; (5) Eg. (caus.) *s-nḳ* 'to give breast to suck' (6) Warji *nəq*; Kariya *nəkə* 'to lick ' (cf. Ron *lok* id.).

sVkVn 'to put' see under ****k***.

****kn̥p***, ****kanap*** 'wing' see under ****k***.

****nək***^{w} 'copulation' see under ****k***^{w}.

****ḥ***^{w}***n̥ 'camping' see under *ḥ***^{w}.

The two sonants **r̥* and **l̥* have much in common, especially in Omotic, where **-r̥-* and **-l̥-* equally develop into *r*, while **-rr-* and **-ll-* (from roots of the pattern *CVS) equally develop into *l*(*l*)-. A similar situation is observed in Cushitic: in Agaw (and in Hadiya in Eastern Cushitic) **-r̥-*, **-l̥-* > V*r*; **-rr-*, **-ll-* > *l*; in Sidamo and allied languages **-r̥-* and **-l̥-* are distinguished, but **-rr-*, **-ll-* > *-l*(*l*). In Egyptian *-r* in Inlaut > ʔ[18]. The sonant **l* develops into *n* (with few exceptions); in Omotic, initially (sporadic cases of **l-* > *n-* are known in Semitic), and in Egyptian, practically in all cases[19], except that *li-* (perhaps also **ri-* > **li-*) > *y-*. In Agaw, contrariwise, it is the initial **r-* which becomes *n*; in Hadiya **r-* becomes *l-*.

Moreover, there are some irregular reflexes, such as Common Cushitic **ləʕ* 'sunshine', Eg. *rʕ* [ri(ă)ʕ] 'sun'; Eg. *rw* [law](?) 'lion'.[20]

****r*** :

On the reflexes see above. Note especially the specific Egyptian reflexes *V*r*# > V?#, **rə* sometimes becoming *y* like *lə*; possibly **rə* > **lə* > *y*?

Above we have quoted numerous examples for intervocalic *-r-*; here we will limit ourselves to showing the reflexes of initial *r*V- and *r̥*-:

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18. Eg. intervocalic **-r-* also developed into *y*, perhaps under certain undefined conditions. During the New Kingdom, the Egyptian scribes regulary used the ʔ-sign to **transcribe** Semitic intervocalic *-r-*. Note that in Hebrew, at least in the Middle Ages, *r* tended to develop into a laryngeal fricative. The Egyptian *r*, before becoming /ʔ/, intervocalically and in Auslaut, may have also gone through a laryngeal stage, but was denoted *ʔ* in the same way as PAA **ʔ*.

19. In the dialects of the Egyptian, *l* did in some but not in all of them survive into Coptic, e.g. Eg. *ns*, Copt. *las* 'tongue'. But in the New Kingdom the Egyptian scribes transcribed the **foreign** *l* sound by combining signs for *n* and for *r*.

Eg. *ʕr*, *ʕry*, corresponding to PAA **ʕal*, is a crux. If the "r" in this word were *r*, we would have to suggest a reduplication *rr*, otherwise we would expect a spelling with **ʔ*. Moreover, the later Coptic reflex is *ale*, which again is curious, since PAA **l*, also when surviving as *l* into Coptic, is invariably reflected as *n* in Egyptian hieroglyphic writing. We suggest that the original Egyptian from was /*ya-ʕall-/, /ʕallay/. This follows from the common AA rule that CVS > CVSS, but CS̯ > CVS. Therefore a reduplication here is quite possible also in Egyptian . Afterwards, of course, the suggested /*ʕall-/ would in both forms develop into /ʕal-/ according to the well known Egyptian vowel syllables law.

20. This is a case entirely different from the one discussed in notes 18-19, because here the pronunciation [r] is warranted by numerous contemporary transcriptions into other languages. But the Cushito-Egyptian correspondence, certain as it is, has so far no known parallels: (3) Afar *laʕo:* 'sunrise', Saho *lelleʕ* (< **leʕ-leʕ-*) 'day; time' *mi-leʕ* 'sun'; Iraqw *loʔa* 'sun, day, heat', *laari* (*-r-* < *-ti*) 'heat'. with irregular loss of the *ʕayn*, perhaps under the influence of the sonant (?); (5) Eg. *rʕ* 'sun'. Perhaps, the relative positions of ʕ and the liquid were responsible for the irregular reflexes.

Examples: ***r(V)ʕ*** 'passing, moving' (?): (1) Akk. *reʔ* 'to herd'; *reːʔ* 'shepherd'; Hebrew *rʕy*; Aram. *rʕʔ*; Arab. *rʕy*; Ge'ez *rəʕya* 'to herd'; (6) Hausa *rùːgá* 'drive off, away'; Ngizim *rəgu* 'migrate, move living quarters'.

rVw* > *rwy*, *rʔ 'plenty of water'; (1) Hebrew *rî* 'flood, overflow'; Hebrew, Aram., Ge'ez *rwy* 'to quench (thirst), to drink to saturation'; Arab. *rwy* 'to water much (cattle, soil)'; Mehri etc. *riːwi* 'to drink' (2) Ayr *ərwəi* 'to mix (liquids)'; Ahaggar *ərwi* 'to mix, shake up (liquid)', *t-aːray-t* 'line marking a level of liquid in a vessel'; (3) Beja *re*; Saho *raw* 'reservoir'; Somali *war* 'pond, pool' (metathetically); (5) Eg. *rʔ* 'water-line', *wrrw* 'water-hole' (6) Hausa *rúwáː*, 'water, rain'.

r̥ç̊ 'earth', see under ***ç̊***.

l: cf. ***r*** above.

Examples: ***las*** 'tongue'; (1) Akk. *liš-aːn-* (< **las-aːn-*) 'tongue, language'; Hebrew *laːš-oːn*; Aram. *lišš-aːn-*; Arab. *lisaːn-* etc.; (2) Common Berber *i-ls* id.; (5) Eg. *ns* (Copt. *las*) id.; (6) Hausa *ha-lše*, Mubi *lisi* id.

ləb 'heart ' (1) Akk., Hebrew, Aram. *libb-*; Arab. *lubb-*, *lubab-*; Ge'ez *ləb* etc., 'heart'; (2) Ayr *e-lăbb* 'stone of fruit, kernel'; (3) Beja *leːb* 'stomach, heart;' Bilin *läbbä-ka* 'heart, intelligence'; Somali *laːb* 'breast, voice, heart'; Oromo *lubbi* 'soul; lung, heart'; (4) Yämma *niːbba* 'heart'; Ometo (dial.) *lipa*, *liba* id.; Kaficho, Mocha *nibboː* 'heart, intellect' (this is the usual reflex of AA **l* in Omotic); Anfilla *yəbbo* 'heart'; (5) Eg. *yb* 'heart'; (6) Sura *llap*; Angas *lap* 'spleen'.

CHAPTER 2.

AKKADIAN: SIBILANTS AND SIBILANT AFFRICATES

2.1. Introduction.

Of all subsystems in the reconstructed PAA phonology it is the subsystem of sibilants and sibilant affricates that presents the greatest number of discrepancies with the Proto-Semitic phonology as hitherto conceived.

The Proto-Semitic (PS) phonological system has traditionally been reconstructed more or less on the pattern of Arabic, which has been regarded as the one Semitic language best preserving the PS phonetics.[21] When writing my 1965 book, I myself, too, followed this tradition, introducing only a few additional features.

In the group of sibilants, I introduced a proto-sibilant *$\underline{s}$ to account for the development of the causative morph and the third person pronoun to *š* in Akkadian but to *ʔ-*, *-h-*, *-s/š#* in most other Semitic languages. Following some of my predecessors (Müller 1889:229; Jušmánov 1926; Vilenčik 1930, 1931; Diakonoff 1965, chapter "Phonology", table and note to its 1.6. On the pronunciation of /š/ (Müller's *ś*) see Johnstone 1981:XIV), I derived the Hebrew *śi:n* (developing into the Arabic *š*) from a lateral **ś*, and two Arabic emphatics fitting into the system, Arabic *ḍ* and *ẓ* I derived from a lateral emphatic **ṣ́* and an interdental fricative emphatic **θ̣*. I felt that this approach to the PS phonological system is supported by the apparent great similarity of Arabic phenomena to what appears in the phonological systems of the two oldest then attested Semitic languages, namely Old Akkadian (Gelb 1961) and Ugaritic (Fronzaroli 1961).

2.2. Sibilants and affricates.

While working on the *CHVA* (see Chapter 3), my collaborators and myself were struck by the strange fact that quite a number of phonemes which, as I were accustomed to think, were sibilant in Proto-Semitic and, by inference, in PAA, appeared in other AA languages, especially in Chadic, Omotic and Egyptian, as affricates (first noticed by Dolgopolsky 1973:100, 103, 106, 109, 113, 122, etc.). In Cushitic, according to Dolgopolsky (1973:23-9, 31-2, 35-7, 93-102), some of these phonemes appeared with a double reflex, e.g. as *s-* in initial position and *-d-* (or *-ḍ-*) in medial, or vice versa. This bifurcation, if the interpretation held good, would also point to an affricate in the prototype. The same phenomenon is also attested in Egyptian where the equivalent of Semitic **ð* (i.e., according to the traditional interpretation, an interdental, but an affricate according to Dolgopolsky and in accordance with our own observations) is Eg. *z* before vowel but *d* before consonant. Even if I discount the Egyptian reflex of **ð*, as well as the disputable Cushitic data, the unanimous evidence of Egyptian, Chadic (especially of the Bauchi groups), and Omotic, calls for reflection. Is the evidence for PS (or even for Old Semitic) sibilants so well founded as has always been thought?

The question may be considered as well taken, since the phenomenon of the affricates is not confined to one single given family of the AA phylum, but involves at

21. One could quote any work touching on Old and Proto-Semitic; a reference to Bergsträsser 1928 and Moscati 1954 should suffice.

least three families, or more probably five, since there are certainly traces of affricates to be found in Cushitic and Berber; hence the phenomenon must be PAA.

We are thus faced with an irrefutable fact: not only do sibilant affricates occur practically in all non-Semitic AA languages but they clearly represent affricates as well on the level of PAA as on the level of the proto-languages of each constituent family of the phylum. The question now is: did the affricates in all the non-Semitic branches of AA develop from Arabic-type sibilants (including emphatic and voiced sibilants), or did a number of Semitic sibilants develop from earlier affricates? Looking at the question from the point of view of liguistic universals, the latter alternative seemed clearly the much more probable: an articulatorily complex phoneme mostly tends to develop into a more simple one, and not vice versa. The idea of a Proto-Semitic language with a number of affricates seemed, however, abhorrent to a Semitistic mentality, and moreover, all grammarians who wrote on Arabic, Ugaritic, Akkadian and now lately on Eblaite never had any doubt whatever that the quasi-Arabic phonetic system, with emphatic and voiced sibilants and no affricates, was the original and Classical Old Semitic system; of this every Semitist was so absolutely certain that to doubt it seemed an unforgivable heresy.

One could easily envisage a situation in which the original PAA sibilant affricates (and there can be no reasonable doubt that they did exist) were lost at a stage preceding PS. This is certainly a possiblity, but I want a proof that this was actually the fact. (PS, according to the usual convention, must be regarded as the state of the Common Semitic dialectal continuum at the date of losing contact with the first proto-dialect to be completely separated in space out of that continuum).

2.3. Etymology and the comparative approach.

The turning point for me was the re-reading of Erica Reiner's *Linguistic Analysis of Akkadian* (1966, quoted below as LAA). This author is, as many colleagues probably know, very skeptical as to the usefulness of a comparative approach to the study of Akkadian, and has set herself the aim of describing Akkadian basing her definitions strictly on the inside data of the Akkadian text corpus itself.

On page 15 the author says: "I have attempted to give a description of the elements of the language – phonemes and morphemes – and the occuring combinations of these elements in terms of categories estabished from the analysis of Akkadian itself..." But on p. 33: "the syllabic values by which Akkadian text segments are represented in the transliteration are composed of phonemes whose general classification was established by Semitic etymology, although, of course, their phonetic identities cannot be recaptured." So far so good. But then on p. 34 the author states: "The literary (also the OB) dialect of Akkadian has the following phonemes: the stops /b, p, d, t, ṭ, g, k, q/, the spirants /z, s, ṣ, s, x/, the sonants /m, n, r, l/, the vowels /a, e, i, u/", and then goes on to classify them into labial, dental, groove-alveolar, palatal, tongue-base; also into voiceless, voiced, pharyngealized, and nasals.

A similar paragraph can of course be found in any manual of Akkadian, but there the reader takes it for granted that data of comparative Semitology have been considered. Erica Reiner's book, however, is one whose author denies as a matter of principle the usefulness of comparative studies for stating the rules of Akkadian gram-

mar and phonology (see, e.g., p. 122 etc.).[22] Therefore the student, having read a paragraph of this kind, may legitimately ask here: how do I know? In how far is Semitic phonology, as traditionally conceived, binding for the reconstruction of Akkadian phonology m̥ and phonetics?

After having mentally put that question to Erica Reiner, I was naturally induced to ask a more general question: whether those who in the past had dealt with Akkadian grammar and, more specifically, made statements on the scope and character of the Akkadian phonological system (myself included) had any proofs of the existence of exactly these phonemes and not some quite different ones. One can be certain, of course, that, e.g., the sign series C_1A, C_1I, C_1U expresses the etymological equivalent of the Arabic and Hebrew phoneme *s*, the sign series C_2A, C_2I, C_2U – that of the Arabic phoneme *ṣ* (and also *ḏ*, *ḍ*), and the sign series C_3A, C_3I, C_3U that of the Arabic phoneme *z* (and also *ð*). This has, of course, been shown conclusively by the first decipherers of cuneiform, and is not subject to any doubt. However, this is no proof that the phonemes expressed by the sign series in question, were actually **pronounced** as in Arabic.

The pronunciation of the Akkadian sign-series must be established through independent data.

2.4. Internal reconstruction.

Least decisive are the data derived from inter-Afrasian comparisons, because the phonological system reconstructed for PAA may not have survived into Proto-Semitic. However, it is important to learn, what the Proto-Afrasian system was; see Chapter 1.

Discounting the data reconstructed for PAA, there are four ways of establishing the pronunciation (the phonetic manifestation) of the phonemes in question:

(1) By studying the distribution of the cuneiform sign-series in their relation to the PAA phonological system (instead of in their relation to Arabic).

(2) By studying the values of the sign-series in other languages, the speakers of which borrowed and adapted Akkadian cuneiform writing to express their own phonetic and phonological systems.

(3) By studying the spelling of borrowings from Akkadian (and other Semitic languages) into other languages (and vice versa).

(4) By studying phonotactic phenomena in Akkadian.

22. Here Reiner rejects the traditional explanation of the formation of the feminine forms of the stative participles *parsu*, *marṣu*, *rapšu*, namely **paristu*, **maruṣtu* > *marušt*u, *rapaštu*, and of the formation of the feminine plural forms *parsa:tu*, *marṣa:tu*, *rapša:tu* from the reconstructed earlier masculine forms **parisu*, **maruṣu*, **rapašu* (or, better, from the *casus* (or *status*) *absolutus* forms *paris*, *maruṣ*, *rapaš*, which are attested, not reconstructed), on the ground that "the traditional explanation is based on etymology". Instead, she prefers to derive the form fem. pl. *parsa:tu* from a historically impossible **pars-tu* (clusters of three consonants in medial position are prohibited in Akkadian, as actually in all AA languages of the Old Stage). Reiner's reasoning is implicitly connected with her rejection of the traditional reconstruction of stress patterns in Akkadian, see Chapter 5 below. The stress rules operative in literary (and OB) Akkadian explain the phenomena in question even without recurring to historical reconstructions.

2.5. The results.

2.5.1. Old Akkadian. Old Akkadian (OAkk.) had three (sometimes four) syllabic sign-series to express sibilants, namely the *ś*-series, the *š*-series, and the *z*-series. In some cases, a fourth series appears, which I had described as *s̲*-series (*SHL*, 1965)[23]. It corresponds to a phoneme which manifests itself in the Later Akkadian orthography as *š* (we shall, for the time being, not discuss its actual phonetic realization), in Hebrew as *h*, and in Arabic as *ʔ-*, *-h-*, *-s#*.

The obvious interpretation for the three OAkk. sibilant sign series would be to decide that they correspond to three separate ponemes, namely /ś/, /š/ (or/θ/, since this later series corresponds to Arabic interdental *θ*), and /z/. This solution is, however, certainly impossible, because for the words containing *z*-signs in Old Akkadian the Later Akkadian Orthography uses three **different** sign series, namely *s*, *ṣ*, *z*. Unless we adhere to the strange theory of spontaneous development of new phonemes without regard to position, advocated lately by G. Garbini, we must conclude (as all Assyriologists do), that the phonemes /s/, /ṣ/ and /z/ already existed in OAkk. but were not distinguished in spelling. This is very plausible, because, in the same way, neither does OAkk. distinguish between /t/, /ṭ/ and /d/, nor between /k/, /ḳ/ and /g/, although special sign-series for these six phonemes appear in the Later Orthography[24], and because the unanimous evidence of the other Semitic (and now also Afrasian) languages shows that all these phonemes must have existed in PS.

It is commonly thought that the PS phonemes reflected in Arabic as *ḍ*, *ẓ* had disappeared in Akkadian, since they have no special sign-series either in the Old or in the Later Orthography. Garbini even thinks they never did exist. However, since the Old Akkadian Orthography uses its *z*-series for three separate phonemes which undoubtedly did exist at the time, there is no reason why it could not use this series for five, and why also separate reflexes of Arab. *ḍ*, *ẓ* (< **ŝ*, **θ*) could not have actually existed in OAkk. and disappeared before the beginning of the second millennium B.C., when the Later Orthography was introduced.[25] This was, namely, exactly what happened with *ḥ*, *ʕ*, *h* (and possibly *ɣ*) which did exist in OAkk. (although very incompletely reflected in writing) but disappeared before the beginning of the 2nd millennium (see Gelb 1961:119).

Be it as it may, the correspondence between the PAA subsystem of sibilants and sibilant affricates and the OAkk. spelling is as follows (we add also the Eblaite orthographic system):

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23. See n. 7. The phoneme occurs in OAkk. in the pronominal stem **s̲-* and in the words *ʔibs̲i* 'existed, became' and *naṣi:* (pl. obl.) 'people', cf. Gelb 1961:35-36. In *CHVĀ* the corresponding PAA phoneme is marked as **š̲*.

24. The Later Orthography was introduced in Babylonia sometime in the beginning of the 2nd millennium B.C. See Gelb 1961:39. The discussion in Gelb's book is basic for any further investigation, but we differ in the interpretation of the graphemic facts. Gelb's $š_1$ is our PAA *s*, his $*š_2$ is our PAA **ŝ* (and **ĉ*), and his $š_3$ is our PAA **č*.

25. I have already had the opportunity to point out that the 3rd millennium B.C. scribes were least of all troubled with the problem of exact rendering of phonetics (in sharp contrast with Pānini or the Masoretes of the early Middle Ages) – or of phonemics, since the distinction belongs to our century; or even of morphology. See in detail Diakonoff 1975.

PAA	OAkk.	Ebla
*s *c *ĉ *z	ś z z z	ś z z z
*š *č *č̣ *ǯ	ś/s̲ š z z	ś š z š
*ŝ *ĉ *c̣ -	ś ś z -	ś ? z -

We see that all the OAkk. and Eblaite *ś*-signs stand for PAA sibilants, and all the OAkk. and Eblaite *z*-signs stand for sibilant affricates. The vacillation between *ś* and *s̲* shows probably that there were several separate phonemes behind the spelling *ś*, as there certainly were several behind the spelling *z*.

The only exceptions are PAA **ĉ* and **č* (in Ebla also **ǯ*)

As to **ĉ*, this was a very unstable phoneme, and it coincided in many Afrasian languages with **ŝ*.[26] Both **ŝ* and *ĉ* certainly existed in PS (this is attested by different reflexes for the two proto-phonemes in several Semitic languages, thus **ŝ* is *š* in Arabic but *š-*, *-s-* in Hebrew, while **ĉ* is *š* in Arabic and *ś* in Hebrew). Apparently they coincided in **ŝ* (or in its reflex) also in Old Akkadian. The Eblaite evidence is not clear.

In order to explain the behaviour of PAA **č* (and **ǯ*) in Old Akkadian (and Eblaite), we must turn to the history of these phonemes in the different Semitic languages.

As has been pointed out above (1.1..(6)), the series of phonemes **š*, **č*, **c̣*, **ǯ* is to be analyzed as */š/, */t+š/, */ṭ+š/, */d+š/ > /d+ž/. The *š* in Semitic was unstable and tended to develop into /h/, cf. Akk. *šu:* 'he', Ebla *śuwa*, Hebr. *h*(?), Arab. *huwa*. Correspondingly, **t+š*, **ṭ+š*, **d+š* > *ž* had to develop into **t+h*, **ṭ+h*, *d+h*, with a later development into interdentals in Arabic: *θ*, *θ̣* > *ð*, *ḍ* and to dentals (appar ently through an interdental stage) in Aramaic: *t*, *ṭ*, *d*. Hebrew and Phoenician show an asymmetrical development > *h*, *š*, *ṣ*, *z*; however, Greek transcriptions demonstrate that a dental element still existed originally in the reflex of *c̣*, at least in Phoenician: cf. PS *c̣ur(r)-*, *c̣u:r-* 'rock', 'name of the city of Tyre' > Greek Τύρος.[27]

We find asymmetry also in OAkk: *ś*, *š*, *z*. Here the reason for it is more readily explicable than in Hebrew. Since OAkk. **š* (*s̲*) did not develop into **h*, as in Western Semitic, there was no reason for a development of **č*, *č̣*, *ǯ* into **th*, **ṭh*, **dh* > *θ*, *θ̣*, *ð*. It was, on the contrary, the plosive component which weakened, but its original presence did not permit a coincidence betwen **š* and **č*; there was a specific phonetic

26. Cf. examples in Chapter 1. The identification of the separate reflexes of PAA **ŝ* and **ĉ* is due to A. Yu. Militarëv.

27. It has been known for some time that the Greek transcriptions of the names of the three Phoenician cities Τύρος, Σιδών, Βύβλος seem to go back to the Mycenæan period (late 2nd millennium B.C.). This appears from the form of the transcriptions: Greek Βύβλος transcribes Phoenician *Gubl*(*a*) which can only be explained by the assumption that the name was learned and first transcribed in Greek at a period before Indo-European **g*^{w} developed into β; cf. Mycenæan *g*^{w}*asilei-* 'an official' for later Greek βασιλεύς 'king'. Also the name of Sidon must have been *Ṣi:du:n* (or *i:du:n*) in the 1st millennium B.C. (from PS ** i:da:n-*). The Greek form with *-o:-* points to a borrowing in the 2nd millennium B.C. (The Amarna tablets of that period spell *Zi-du-na*, but this is only because there was no *o*-sign series in cuneiform). The difference between North Canaanite *-u:-* (< **-a:-*), attested by Greek transcriptions (-υ-, -ου), and South Canaanite *-o:-* (< **-a:-*) (as reflected in Hebrew) is hardly earlier than the 1st millennium B.C.). The pronunciation of the Phoenician city-name /*c̣^{y}u:r/, or /*ṣ^{y}u:r/, /ṭ^{y}u:r/ 'Tyre' must be also dated to the 2nd millennium B.C. (*Sur* in some Roman inscriptions, as pointed out to me by I. Schiffmann).

characteristic which separated the reflex of *č from simple *š*. It is hard to say what it might have been; possibly a palatalization which did not allow to class it either with the rest of the original affricates, or with the original sibilants.[28] The Eblaite spelling of the reflex of *ǯ as *š* is in keeping with the overall spelling rule which does not allow for a distinction between voiced and unvoiced. The OAkk. spelling is inconsistent.

Hence we reconstruct, very hypothetically, the OAkk. phonetic series in question as:*

*šʸ *čʸ *c̣ʸ, *ǯʸ
with a further development to
sʸ, šʸ, c̣ʸ, ǯʸ
reflected in the Later Akkadian spelling as
š, š, ṣ, z.

A similar development may be postulated for Hebrew, with the following stages:

*š, *č, *c̣, *ǯ > *šʸ, *čʸ, *c̣ʸ, *ǯʸ > *h, *cʸ, *c̣ʸ, *ǯʸ > h, š, c̣, ǯ.

The phoneme *c̣ʸ could very easily have been transcribed by *t* plus fronted vowel in Achæan Greek. See however n. 7.

We can see that the data of the OAkk. and Eblaite writing system favor or, at least, do not contradict the hypothesis that the sibilant affricates still survived in Old North Semitic, at least in the 3rd millennium B.C.

It is especially important that the equivalent of the Hebrew *s* (*sa:mäḵ*) is expressed in OAkk. by the *z*-series. Were it a sibilant, the obvious way to express it would be the *ś*-series.

2.5.2. The Later Akkadian orthography. If we now turn to the Later Akkadian Orthography, introduced in the early 2nd millennium B.C., the picture will be as follows:

PAA				Akkadian (conventional transcription)			
*s	*c	*c̣	*ǯ	$š^{29}$	s	ṣ	z
*š	*č	*č̣	*ǯ	š	š	ṣ	z
*ŝ	*ĉ	*ĉ̣	-	š	š	ṣ	-

An innovation which immediately strikes the eye is the invention of a method to distinguish emphatics (the same is true of dental and velar emphatics where a *ṭ*-series and a *q*-series were introduced: the labial emphatics still certainly existing in PS may have early disappeared in Akkadian, see Chapter 3). But there is no way to find out directly from the spelling whether the emphatic spelled by the *ṣ*-series was a sibilant or a sibilant affricate. It is also not apparent whether this sign series expressed one

28. Another possible interpretation is that the PAA *č series developed into affricates with the frictionless continuant [ɹ].

29. Goetze (1958) noted an additional sibilant s_x in the OB dialect of Akkadian, spelled with *s*-signs but corresponding to Hebrew *š* and Arabic *s*, hence from PAA *s, not from *c. But since there are no traces of an additional sibilant in PAA, I am inclined to think this is a case of borrowing from Amorite (cf. s_x*lm* competing with normal *šlm* for PS **slm* 'peace'). The s_x is probably to be read /s/ and thus be distinguished from spelled *s*= /c/, and spelled *š* = PAA *s which might have been phonetically reflected as /ŝ/ in OB, see below. Note that the Later Orthography had slightly differing variants.

phoneme or several.[30] Other methods are needed to establish the answer to both problems.

We see also that all original simple sibilants are now expressed by the *š*-sign series; whether there was one or several phonemes behind the spelling is also in this case not directly apparent. Further below we shall present arguments in favour of the hypothesis, that this spelling continued for some time to express at least two separate phonemes, /s/ and /ŝ/. But notice that there again is a special sign series for the *sa:mäḫ*; the phoneme in question is not rendered by the *š*-series used for other, original simple sibilants. It is true that the *sa:mäḫ* is now expressed by the sign series which we formerly designated, following Gelb and von Soden, as the *ś*-series used in the Old Akkadian Orthography for the simple sibilants. This might be taken for a proof that this particular phoneme in question had now lost its affricate character and become /s/, at least in the dialect whose speakers were responsible for creating the Later Orthography; however, from other evidence (see below 2.5.2.sq) we learn that this was not the case: it still was /c/. Therefore, the most plausible explanation is that the *š*-sign series originally used for PAA **č* (/c^y/?; /s^y/? was now used for all simple sibilants **including** the one derived from PA **č* (/s^y/?), while the former *ś*-series (now *s*-series) was free for the expression of the non-emphatic sibilant affricate /c/, to distinguish it from the emphatic and voiced affricates.

2.5.3. Values of borrowed cuneiform signs. Now we turn to the values of the cuneiform sign series when borrowed for writing languages other than the Semitic Akkadian and Eblaite.

2.5.3.1. Hittite. Hittite cuneiform writing was borrowed from the Hurrians of Syria and Northern Mesopotamia in ca. the 18th century B.C. (see in detail Gamkrelidze 1962:208). When we say "from the Hurrians", this does not mean the borrowed spelling was used for writing texts in Hurrian; in the Hurrian scribal offices of Alalah, Mitanni, Arraphe, etc. Akkadian was used much more frequently that the native Hurrian language.

Thus, the Hittites borrowed the **Akkadian** writing as practiced by the scribes in Hurrian countries. These scribes, as we know in the instance of Arraphe (Lacheman 1962:236-8), were not infrequently Akkadians or descendants of Akkadians.

Hittite uses only two sign series for sibilants and sibilant affricates, namely the *š*-series for what etymologically is I.-E. **s*, and the *z*-series for what etymologically is a palatalized I.-E. **t^y*, i.e., probably for /c/ = /ts/.[31] It is clear that the Hittite orthography, like the early Hurrian, is a descendant of the Old Akkadian, not of the

30. One is not to believe that inventing the Later Orthography, the Babylonians at last found the means of expressing all phonemes. They may have been a little more preoccupied by the problem of pronunciation than their colleagues of the 3rd millennium B.C., but not unduly so. Thus, they never created a complete sign series to distinguish *z* from *ṣ* or *d* from *ṭ*, and they never had any means to distinguish voiced, emphatic or unvoiced in Inlaut. The phonetic realizations were, however, obviously different also in Inlaut, as can be gathered from different circumstantial evidence. Thus we have no **positive proof** that the different original emphatic sibilant affricates actually coincided in Akkadian at any period.

31. This has certainly been understood already by Hrozný and stated in all manuals beginning with Sturtevant and Friedrich.

Later Akkadian one. Hittite evidence strongly supports the theory that the Akkadian *z*-series still expressed sibilant affricates in the early 2nd millennium B.C.

2.5.3.2. Hurrian. Hurrian (3rd-2nd millennia B.C.) presents a tougher problem. First of all, there existed several different Hurrian orthographies (Diakonoff 1978 Ch.2), and moreover, Hurrian was also written in Ugaritic quasi-alphabetic writing. The older Hurrian orthography is obviously that used by the early Hurrian scribes for Akkadian and transmitted by them to the Hittites; except that Hurrian certainly had many more sibilants and sibilant affricate phonemes. The most sophisticated Hurrian cuneiform orthography originating from Mesopotamia was that of Mitanni. It distinguished between *š* (or *s̄*, Ugar. lax *θ*; voiced *z̄* between and after vowels), *šš* (or *s̄s̄*, unvoiced, tense), *s* (= Urartian *ṣ*, an affricate) and *z* (probably another type of affricate) The greatest number of separate symbols for sibilants and sibilant affricates we find in the Ugaritic quasi-alphabetic spelling, where we have:

Ugaritic	PAA
θ = Mit. unvoiced *š*-, -*šš*-	**č*
š$_1$(*ž*) = -*š*-	?
s = Mit. *s*	**c*
ṣ = ?	**ç*
z = Mit. *z*; -*zz*- (unvoiced?)	**ǯ*; -*cc*- ?

The first column corresponds to the conventional "Arabicizing" reading of Ugaritic; the PAA correspondences of the (Semitic) Ugaritic phonemes are given in the right-hand column.

The only ways to find out the Hurrian pronunciation of the sign-series in question are (1) to compare it with the spelling of the same words and roots in the related Urartian language, (2) to compare it with the Proto-East-Caucasian (PEC) roots from which the Hurrian words are derived.

Ad (1): there are such equivalents as Hurr. *Teššub* 'name of a god' ~ Urart. *Teišəbâ*, Hurr. *šawalə* 'year' ~ Urart. *šâlə*, Hurr. *-uš*, *-šši-* ~ Urart. *-šə*, *-šə*, Hurr. *piš-* 'to rejoice' ~ Urart. *piṣ-*, Hurr. *sar-mə* 'forest' ~ Urart. *ṣarə* 'garden', Akk. (< Hurr.) *Alzi* 'name of a country' ~ Urart. *Alzi* etc. See 2.3.1.3. below on Urartian writing.

Ad (2): This is not the place to discuss this extremely intricate problem; see Diakonoff-Starostin 1986 (HUECL). However, it can be stated here that, according to our data, Hurr. *s*, *ṣ* and *z* correspond to the PEC affricates **c*, **ç* (glottalized) and **ʒ* and possibly also to **č*, **č̣* (glottalized) and **ǯ*: cf. also the Egyptian transcription *Pjrʔč*ʔ /pir(i)čči/ of a Hurrian 2nd millenium proper name **pi-ri-iz-zi*, with a probably unvoiced affricate -*zz*- (/cc/?). Hurrian *š*-, -*šš*-, at least in most cases, correspond to simple sibilants.

2.5.3.3. Urartian. The Urartian writing system (first half of the 1st millennuim B.C.) is a descendant of one of the variants of Hurrian writing. This is rather obvious in the case of cursive Urartian (Diakonoff 1963:18-25), but epigraphic Urartian was remodelled, in regard to the sign-forms as well as, to a certain degree, the orthography, to resemble the Neo-Assyrian epigraphic variant of the Akkadian writing. There is good reason to believe that in the Neo-Assyrian dialect the *š*-series was pronounced [s];

while the *s*-series did not merge with it, and could conceivably have still been pronounced [*c]. The *s*-series in Neo-Assyrian is widely used for the reflex of earlier Akkadian *-št-* (/-st-/ > /ts/), etc.; more about it below.

The pronunciation of the Urartian sign-series can be established through Armenian and partly Greek transcriptions of Urartian toponyms (Diakonoff-Kashkai 1981), and also by the form of Urartian borrowings into Armenian (Diakonoff 1979:214-34, 1982, 1985). But since Greek had no bifocals or groove-alveolars, and no /*ts*/-type phonemes, Armenian is our clue:

Urart. *s* ~ Arm. *cʿ*[32]: hypothetical, based on Hurrian reflexes (e.g. Urart. *-usə* ~ Hurr. *-izzi* which certainly contained an unvoiced affricate).
Urart. *s* ~ Arm. *čʿ*[32] : hypothetical, based on PEC etymologies.
Urart. *š* ~ Arm. *s*: Urart. *Ṭušpâ* ~ Arm. *Tosp*.
Urart. *š* ~ Arm. *š*: Urart. *šēšeti-* ~ Arm. *šavšatʿ-*'.
Urart. *ṣ* ~ Arm. *c*: Urart. *Ṣuluqu-* ~ Arm. *Cłuk*, Urart. *ṣu-e* [*cowə*?] ~ Arm. *cov* 'lake'. NB Urart. *piṣ-* 'to rejoice' corresponds to Hurr. *pis-* ditto. [33].
Urart. *ṣ* ~ Arm. *č*: hypothetical, supported by PEC etymologies.[33]
Urart. *z* ~ Arm. *j* (i.e. /ʒ, dz/); Hurr., Urart *Alzi-(ni-)* ~ Arm. *Aljni-kʿ*.
Urart. *z* ~ Arm. *ǰ* (i.e. /ǯ, dž/): Urart. *Zabaxae* ~ Arm. *Jawax-kʿ*, Georg. *ǯavax-eti*.

Apparently, the Urartian sign-series *š; s; ṣ; z* correspond to /s/ and /š/ (series *š*); /c/ and /č/ (series *s*); /cʿ/ and /čʿ/ (series *ṣ*); /ʒ/ and /ǯ/ (series *z*).

This means that the originally Akkadian sign series *s*, *ṣ*, *z* might as late as the beginning of the 1st millennium B.C. still have had the pronunciation /c/, /ç/, /ʒ/.

2.5.3.4. Elamite. The Elamite writing was originally identical with the Akkadian cuneiform, and followed its reform of the orthography (from Old to Later); in the late 2nd millennium B.C. a local system of orthography was introduced.

Old and Middle Elamite (late 3rd-early 1st millennium B.C.) have three sibilant sign series: *š*, *s* and *z*; later only two, *š* and *z*, the referent of *s* having apparently coincided with *z* (the signs *za*, *zé*, *zu* can also interpreted as *ṣa*, *ṣi*, *ṣú*).

The pronunciation of Late Elamite (RAE) can be established through Elamite transcriptions of Iranian proper names and toponyms, as well as from the spelling of the Iranian borrowings into Elamite (see Reiner 1969; Cameron 1948:91; Gershevitch 1969:185sq; Mayrhofer 1973:60sq, §2:446). Here it is sufficient to state that the *š*-series transcribes Old Iranian *s* and *š*, while the *z*-series, the Old Iranian *č*. However, a pronunciation /c/ of the Elamite *z*-series is not impossible.

Again we have a compelling indication that the Akkadian *z*-series and *s*-series were used not only originally, but still in the 2nd and perhaps the 1st millennia B.C., for sibilant voiceless affricates.

2.6. Borrowings from Akkadian. Let us now turn to the spellings of the words borrowed from Akkadian and other Afrasian languages.

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32. Armenian aspirated *cʿ*, *čʿ* were also used to transcribe Georgian non-glottalized *c*, *č*. The PEC correspondences of the Urartian words in question are non-glottalized. Hence Urartian *s*-signs, very probably, rendered non-glottalized sibilant affricates.

33. The PEC correspondences of the Urartian words in question have a glottalized sibilant affricate. Armenian *c*, *č* are also used to transcribes Georgian glottalized *cʼ*, *čʼ*.

2.6.1. Into Egyptian. The most interesting case are the borrowings into Egyptian. Egyptian had the following signs for sibilants and sibilant affricates:

Egyptological transcription	Transcription in *CHVA* (also used here)
ś	*s*
s	*z*
š	*š* (possibly lateral /ŝ/)
t̲	*č* /t+s/ or /t+š/ or /t+ŝ/
d̲	*ǯ* (*ǧ*) /d+s/ or /d+š/ or /d+ŝ/

There are no emphatic (glottalized) sibilant or sibilant fricative in Egyptian, because the dental emphatic **ṭ/ḍ* had evolved into *d*, hence **ç, *č̣* > */d+s/, */d+š/.

There exist quite a number of lexical borowings of different epochs from Old Semitic into Egyptian, but in some cases it is difficult to keep borrowings apart from common AA material. Therefore, here we shall only use Egyptian transcriptions of Semitic toponyms and proper names (and also some Akkadian transcriptions of Egyptian toponyms and proper names). In a few cases we have also used obvious Egyptian borrowings from Semitic, namely when the Egyptians themselves felt the words as foreign and spelled them in their "syllabic orthography" (Albright 1934).

These borrowings, both toponyms and the others, are mostly from Old West Semitic, seldom from Akkadian, but the result of the study shows that Old West Semitic demonstrates the same features which we have established for Old Akkadian (and Old Babylonian). Part of the material is as late as the 7th-6th centuries B.C.[34]

The Egyptian transcription of the Old Semitic sibilants is as follows:

Conventional Semitological transcription	OAkk. transcription	Egyptian transcription (traditional in brackets)	PAA reconstruction
ś	*ś*	*s, š* [ś, z; š]	**s*
s	*z* (late *s*)	*č* [t̲]	**c*
ṣ	*ṣ*	*s* [ṣ]	**ĉ* > **ŝ*
t̲, θ	*š*	*s* [š]	**č* > **cʸ/*sʸ*
ṣ	*z* (late *ṣ*)	*ǯ* later also *č* [d̲, t̲]	**ç*
ḏ, ŝ	*z* "	*ǯ* [d̲]	**ĉ*
ẓ, ḏ̣	*z* "	*ǯ* [d̲]	**ç̌*
z	*z*	*ǯ* [d̲]	**ǯ*
d̲	*z* (Ebla *š*)	*ǯ* [d̲]	**ǯ*

Thus, the Egyptian writing, based on principles entirely different from the cuneiform, reproduces in the 2nd millennium B.C. the Semitic equivalents of the PAA phonemes practically in the same way as does the OAkk. spelling: all PAA sibilants (for which OAkk. uses the *ś*-signs) are transcribed as *s* (or *š*); all PAA affricates including **c* (~ Arab. *s*, Akk. Later Orthography *s*), that is, all phonemes for which OAkk. uses the *z*-signs, are transcribed as *č* or *ǯ; č* being used for the unvoiced PAA **c* and partly for **ç*, while *ǯ* is used for emphatic and voiced sibilant affricates. The exception

34. Some of the latter examples have been kindly pointed out to me by A.L. Vasojević.

in both writing systems is PAA *č, for which OAkk. uses š-signs, Egyptian uses mostly s-signs, although they actually also had š-signs of their own.[35]

s. The Hittite /s/, conventionally transcribed by the Hittitologists as š (since the š-sign series of the OB cuneiform is used) is consistently transcribed by Eg. *s*. The examples are many and need not concern us here. The Hittite *z* which is from I.E. **t*+*s*, is in Egyptian indiscriminately transcribed as č (*t̲*) or ǯ (*d̲*).

But also the Semitic š of the conventional transcription, which we propose to read [s], is transcribed as *s* in Egyptian, e.g.:[36]

Hebrew *Ša:ro:n* toponym ~ Eg. *s?-rw-n-?* (A.[37] *Sa-ru-na*)
Akk. *Ištar* a goddess ~ Eg. *y-s-t?-r-* (i.e. /?Vstar/)
Akk. *Aššur*, W. Sem. *?Aš(š)u:r* ~ Eg. *y-(s-)sw-r* (A. *?A-su-r*)
Hebrew *?Akša:p* toponym ~ Eg. *y-k-z-p(-sp)!* (*-z-* = [-s-])
Semitic **Da/i(m)mašq-*toponym (*š* = [s]) ~ Eg. *tj-ms-q-w* (A. *Ta-mas-qu*)
Hebrew *Šəkäm* toponym ~ Eg. *s?-k-?-m?-?* (A. *Sa-ka-ma* cf. *Šakm-*).

There are, however, a number of cases where the correspondence to the West Semitic š (i.e. = [s]) is Eg. *š*, e.g.:

Hebrew *Šun/la:m* toponym ~ Eg. *š?-n-?-m?* (A. *ŠV-na-m(a)*)
Hebrew *La:kîš* toponym ~ Eg. *r-k-j-š?-?* (A. *Ra-ki-š(a)*)
W. Semitic *ro:/u:(?)š* 'head' ~ Eg. *rw-?-w-š?-?* (A. *ru-?-ša*)
W. Semitic *qudš-* 'holy'~ Eg. *qd-d-š* (A. *qdš*).

In the two latter cases certainly, in the two first probably we have to do with the PAA phoneme **s* (cf. Arabic *Su:lam*, *La:kis*).

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35. There remains some doubt whether in their rendering of Western Semitic phonetics the Egyptian scribes may not have been influenced by Akkadian-speaking cuneiform scribes. It is well known that all Syria, Palestine and partly Phoenicia used Akkadian as the language of the royal offices. A pointer is the transcription of Hurr., Hittite *Pabaxxe* 'mountaineer (country)' as Eg.*Pbx* (*p?-b(-w)-x*, Albright 1934:41), while it is practically certain that the Hurrians pronounced it as /fâvaxə/, and the Egyptians had their own sign series expressing the phoneme /f/ at their disposal. Laroche (1980, under *paban-*) mentions the variant spellings of the word 'mountain' in Hurrian: *pa(-a)-pa-ni-* and $wa_a(-a)$-wa_a-*ni-*). These variants point unambiguosly to a pronunciation /fâvani-/, which is supported by the Eastern Caucasian etymology (< **f·an-f·an-*); cf. Diakonoff and Starostin, *HUECL* s.v. – The Egyptian scribes must have had their form of the term from Hittite or Akkadian scribes, in whose language there was no fricative labial. But on the other hand, the Egyptian scribes did reproduce the specific Hurrian phonetic characteristic of pronouncing the intervocal velar spirant **x* as voiced γ, namely by spelling *g* (Hurrian toponym *Nuxaššе*, W. Sem. **Luγa:č*, *Lʕš* , Eg. *j-n-j-w-g?-s*; A. *Nu-ga-s(a)*); Hurrian toponym *Kaxat* ~ Eg. *K-?-g-?-tj-j*). In the same way, the Egyptian spelling also reproduced the W. Sem. *γ, which thus did not coincide with ʕ, ʔ, as it did in Akkadian, or with ʕ, proper, as possibly was the case in Eblaite (Hebrew *ʕAzza:*, Arab *γazz-at-*, Greek Γάζα, toponym Eg. *g-?-ǯ?-(?-)t-w*, A. *Ga-ǯa-tu*; Akkad. *šanxara*, Hebrew *Šinʕar*, toponym ~ Eg. *S?-nw-g-?-r*.

The *γain* did disappear in Akkadian probably no later than the first half of the 3rd millennium B.C. Gelb doubts its existence in OAkk. and Eblaite, supposing that *ʕ, *γ, and **ḫ*, or at least the first two, had "coalesced into one phoneme in the Sargonic period", i.e. by about 2300 B.C. (1961:119; Gelb 1981:19).

36. Some glosses cited by Albright but which seemed etymologically unreliable have not been included.

37. Under (A) we add the reading of the syllabic transciption according ot the rules proposed by Albright, with the following alterations: (1) we regard Albright's *Ca*-renderings as also valid for CØ; (2) we transcribe č, ǯ for A.'s *t̲*, *d̲*; (3) where the sign or sign-combination has the multiple value *Ca*, *Ci*, *Cu*, we write CV. Note that A.'s examples are mostly from the New Kingdom, at which epoch the voiced consonants *d*, *z*, *g* already were mostly unvoiced to *t*, *s*, *q* or *k*.

Albright also derives Eg. *š?-r-m* (A. *ša-r-ma*) from Sem. *šalam-* (= /*salam-/), and *š?-?-b-w-d* (A. *šv-ba-d/ṭ-*) with Hebrew *šabṭ-* 'staff'. He also identifies the sign group *š?-m?-š?-* in certain proper names as Sem. **Šamš-* 'sun'. There are also some other examples of a seeming correspondence Sem. *š* (conventional) ~ Eg. *š*.

The situation calls for deliberation. First of all, we should perhaps eliminate Sem,. **Šamš-* 'sun', because the original form seems to have been **ŝam-ŝ/š*, where Sem. *ŝ* certainly corresponds to Eg. *š*. The rest of the evidence seems to suggest that the passage of Common Semitic **s* > W. Sem. *š* was on its way during the New Kingdom, to which Albright's examples belong.[38]

***ŝ*.** No certain attestations in Egyptian transcriptions.

***c*.** The phoneme (conventionally transcribed in Semitic as *s*) is reguarly transcribed as Eg. *č*, e.g.: Hebrew *sōp̄ēr* < W. Sem. **sāpir-* 'scribe' ~ Eg. *čw-p?-?-j-r-* (A. *ču-pi-r-*)

Amarna *Zil* toponym (read according to Albright /*sillo:/) ~ Eg. *č?-rw* (A. *čV-ru*).

W. Sem. *Sinza:r-* toponym ~ Eg. *č-w-n*(pl.)-*ǯ?-r* (A. *ču-unǯa-r*)

Sem. **skt* 'to be silent' ~ Eg. *čk-tj-j-n-?* (A. *čVk-ti-na*) 'the silent one(s)' (the watchman, -men)

Sem. *?asi:r-* 'captive' (probably also the name of a king of Amurru spelled with *-z-* in Amarna) ~ Eg. *y-č?*[39]*-j-r* (A. *?a-či-r*) id.

Hebrew (late) *sîr-at-* 'bark' ~ Eg. *č?-j-r-tj-j* (A. *či-r*(*a*)*-t*(*a*))

Hebrew *ss* 'swallow' (bird) Eg. *č-w-č-w* id.

Akk. *siri(y)a:m*, Hebr. *siryo:n* 'coat of mail' ~ Eg. *č?-j-*[*r*]*-jj-n-?*, (A. *či-*[*r*-]*-ja-n*(*a*)).[40]

Thus also in the 1st millennium B.C.:

Akk. *Sa/ixpima:*(*?*)*u* proper name ~ Eg. *č?j-Ḥp-ym.w*

But note that later Hebrew equates its own *s* (<PAA **c*) with Eg. *s*, not *č*, thus the proper name Hebrew *Pînəḥa:s* < Eg. *p?-nḥs* 'the Negro'.

č (conventional *ṯ*). As has been seen from the discussion of the OAkk. orthography, above 2.5.1. and cf. n. 7, PAA **č* was pronounced both in OAkk. and in Eblaite not as /č/ but rather as a palatalized [*tʸ] or [sʸ], or perhaps as an affricate with a frictional alveolar continuant [*tɹ]. The same seems to have been the case also in Western Semitic, unless an interdental [θ] of the Arabic type had already evolved. Egyptian vacillates between *s* and *š*:

38. The transcription of the name of the Egypto-Libyan Pharaoh Psammetichus, Eg. *Psmčk*, Aram. *Psmšk*, *Smšk* is a case apart. The Assyrians (also a text of the period of Cambyses) transcribed here the Eg. *s* as *š*, which in the Assyrian dialect was pronounced /s/, but the Babylonians (with the one exception mentioned above) transcribe Eg. *s* as *s*, because (1) in the Babylonian *š* (spelling) stood for /š/, see 2.7.1.4. (2) Old Semitic **c* may have developed into *s* by the VII[th] century B.C., either under Aramaic influence or spontaneously all over the area. The Egyptian *-č-* is in this name, strangely enough, variously transcribed in Akkadian as *-l-*, *-s-*, or *-šši-*, and in Aramaic (letters of Aršama), as *-š-* (read [ŝ]?). Many different explanations have been proposed, but none of them are convincing. Perhaps we should take into consideration that the name is Libyan, not Egyptian, and Eg. *č* may here represent an Old Libyan phoneme foreign to Egyptian, e.g. PAA **ŝ* or **ĉ*.

39. The sign *č?* is always (even in the usual, non-syllabic Egyptian spelling) to be read /či?/. The Eg. *č* originates from **k*(*i*)-, so it could not occur before /a/.

40. Note that the more usual Hebrew form is *širyo:n* (< **č-?*).

W. Sem. *ʕAθtar-t-* 'Astarte' ~ Eg. *ʕ-z-tj-j-r-tj-j(-t)* (A. *ʕA-s-ta-r-ta(-t)*)
W. Sem. *Ḥadaθ-at-* "New' (toponym) ~ Eg. *ḥ?-d-?-sʔ-č*[41] (A. *Ḥa-da-sa-t*)
Akk. *ʔIštar* < **ʕEčtar* 'goddess' ~ Eg. *y-s-tʔ-r*
Sem. **θalg-* ([čalg-]) 'snow' ~ Eg. *s-r-q-w* (A. *sa-r-qu*)[42]

However, Sem. **θaγr-* (<**čaγr-*) 'opening, gate' ~ Eg. *šʔ-ʕ-r* (A. *ša-ʕa-r*). The example is rather late (12th century B.C.)[43]

***ĉ.** There are only few examples; the Egyptian reflex is *s*. Note that in OAkk. and in Eblaite PAA **ĉ* coincided with **ŝ* and, further, with *š/s*. However, **ĉ and* **ŝ* did not coincide in Proto-Hebrew, because PAA **ĉ* is Hebrew *ś*, but PAA **ŝ* is not. The Egyptians, anyway, did not, in transcribing Semitic words, distinguish PAA **ĉ* as a separate phoneme; or perhaps they dealt with a dialect that treated this phoneme in the same way as Akkadian and Eblaite did.

Examples:

Sem. **ĉaʕr-* 'hair' ~ Eg. *sʔ-ʕ-rw* (A. *sa-ʕ-ru*) 'thicket'
Hebrew *śe:ʕîr* (<**ĉayʕi:r-*) toponym ~ Eg. *sʔ-ʕ-j-ru* (A. *Sa-ʕi-ru*)[44]
Hebrew *śôkô* (<**ĉauku:*?, cf. Arab. *šuwayk-at-* toponym ~ Eg. *sʔ-w-kʔ* (A. *Sa-u-ku*)[45]

ç , č , *ĉ were not distinguished by the scribes, and were all invariably transcribed by the Egyptian *ǯ*, a voiced affricate. The voicing is probably due to the fact that PAA **ṭ* developed into Eg. *d*, and also Semitic **ṭ* was transcribed as Eg. *d*. Voicing was the only way which the Egyptians could render a dental emphatic, whether plosive or affricate. Examples:

Semitic (Akk.) *gaṣṣ-* (-çç-) 'gypsum' ~ Eg. *q-ʔ-ǯ-ʔ* (A. *ga-ǯa-*)[46]
W. Sem. *Ṣi:do:n* < **Çi:d-a:n-* 'Sidon' toponym ~ Eg. *ǯd-d-n-nʔ* (i.e. *ǯdn(ʔ)*
W. Sem. **Çarap-at-*, Hebrew *Ṣa:rəp̄at-* 'Sarepta' toponym Eg. *ǯ-r-p-w-tj* (A. *ǯa-r-pa-t(a)*)
W. Sem. *Ṣumur* toponym ~ Eg. *ǯʔ-mʔ-r* (A. *ǯV-mV-r*)
Hebrew *ṣa:pôn* 'north'; also toponym ~ Eg. *ǯʔ-p-w-n-ʔ* (A. *ǯa-pu-na*, but perhaps *ǯa-pa-na*, the northern form **Ç/Ṣapa:n-*)
Semitic *ču:r-*, Greek Τύρος 'Tyre' toponym ~ Eg. *ǯʔʔ-ʔ-w/j-r* (A. *ǯV-u-r*)
W. Sem. **ĉo:/u:biʔ-* 'warrior' ~ Eg. *ǯʔ-bʔ-j-ʔ* (A. *ǯV-bi-ʔi*)
Sem. **ĉiʔ-ĉiʔ-* > *ṣi:ṣiʔ-* 'bloom' (cf. Arab. *ḍa:ʔ-* id.) ~ Eg. *ǯʔ-ʔ-ǯʔ-j* (A. *ǯi-ǯi*)
Later:[47] Eg. *ǯ-ʕn(-t)* [ǯaʕn(at)] 'Tanis' toponym ~ Akk. *Ṣa-ʔ-nu*, Hebrew *Ṣo:ʕa:n*, Greek Τάνις

41. Final Eg. *-č* (*t*) had long evolved into /t/ by the time of the New Kingdom.

42. q is usual for Sem. *g*. Egyptian had unvoiced its plosives by the time of the New Kingdom.

43. Note that in other cases Egyptian transcribes Semitic γ as *g*.

44. However, Albright suggests also another identification of this toponym, besides Hebrew *śe:ʕîr*.

45. *kʔ* is to be read /ku(ʔ)/ also in non-syllabic Egyptian writing.

46. There is also another, not syllabic writing of this word in Egyptian, and the direction of the borrowing is disputed. However, Akk. *g* as a rendering for Eg. *q* would be unexpected.

47. Information kindly placed at my disposal by A.L. Vasojević. The dates are between the 7th and the 5th centuries B.C.

Eg. *ǯ-d-ḫr-r* [ǯe(d)-Ḥa:(r)] ~ Akk. *Ṣi-xa-a/-a?*, Greek Ταχῶς, Τεώς.
Eg. *ḫr-w-wǯ?(-w)* [*Ḥar-waǯV*] ~ Akk. *~Xar-u-a-ṣi, Xar-ma-ṣu* etc.
Eg. *W-wǯ?-X-n-sw* /WVǯV-XansV/ ~ Akk. *Ú-ṣi-xa-an-ša*
But also Eg. *čb-nčr* ([-nute])[48] ~ Akk. *Ṣab-nu-ú-ti.*

The fact that 1st millennium Akkadian (prevalently Assyrian) scribes rendered both Eg. *ǯ* and *č* as their *ṣ* is to be explained by the development of the original PAA **c* in New Akkadian > *s* and presumably of **ʒ* > *z*; hence *ṣ*, to read [ʦ], was the only affricate left to render the two Egyptian affricates, *ǯ* and *č*.

**ʒ* and *ǯ*. Had the Semites lost the affricative character of these phonemes by the time of the New Kingdom, the Egyptians would probably have had to render the resulting Semitic **z* by their *s*, since Egyptian *z* became *s* by that time. But if the affricative character of PAA **ʒ*, **ǯ* was retained, they would have probably used their own affricates. The latter was actually the case. Moreover, in this respect the Egyptian scribes did not distinguish between PAA **ʒ*, later *z* and PAA **ǯ*, later *ð*. Curiously enough, they used to render Sem. *ʒ* and *ǯ* not only by their own voiced affricate *ǯ* but also by their unvoiced one, *č*. The reason is probably the ongoing unvoicing of the voiced consonants in Egyptian itself, and the absence of an emphatic element in Semitic *ʒ*, *ǯ* as well as in Egyptian *č*.

Examples:

**ʒ*:
W. Sem. *Gaʒ(i)ru* toponym ~ *q-?-ǯ?*[var. *ǯ-j*]*-r* (also with *g-*) (A. *Q/Ga-ʒi-r(a)*)
Amarna *zabnak* 'a vessel' ~ Eg. *č?b-b-n-?-k?* (i.e. [*čab*]*-na-ku*)
Akk. (also W. Sem.) *kuzu:* 'groom', W. Sem. pl. **kuzu:na*, **kuzi:na* ~ Eg. *k?-č?-n-?* (A. *ku-či-na*)
Akk. *namzi:t-*, *manzi-t-* 'a vessel' ~ Eg. *m-n-č?-?-t* (A. *mVn-či-t-*)
Hebr. *Ḥäzyon* toponym ~ Eg. *ḫ?-č?-jj-n-?* (A. *Ḥa-či-ja/u-na*)
W. Sem. *garʒi:n-* 'ax' ~ Eg. *q-?-j-r-ǯ?-?-n-?*, *q-?-r-ǯ?-j-n-?* (A. *qi-r-ǯa-n(a)*, *qa-r-ǯi-n(a)*)
Sem. **ǯika:r-* (W. Sem. with *-u:-* 'man, male' in the proper name Eg. *č?-k?-rw* (A. *či-ku-ru*)
Sem. *ʔa:ʒir-*, W. Sem. with *-u:-* 'helping, helper' ~ Eg. *ʔ-w-ǯ?-j-r* (A. *ʔu-ǯi-r(a)*).

2.6.2. Into Hebrew. Akkadian names in Hebrew transcription are few; of those that can throw light upon the pronunciation of Akkadian sibilants the following may be quoted:[49]

ʔšwr[50] 'Assyria, Assyrians' ~ Akk. *ʔAššur*
ʔsnpr (Aram.) name of an Assyrian king ~ Akk. *ʔAššur-ba:n-apli*(?)
ʔsrḥdn name of an Assyrian king ~ Akk. *ʔAššur-ʔax(a)-ʔiddin*

48. Eg. *č* (traditionally *ṯ*) had mostly evolved into /t/ by this time, cf. n. 41.

49. The vocalizations are post-Biblical and conventional in all cases, and are of no importance.

50. In Old Sumero-Akkadian and Eblaite toponym lists the name *ʔAššu(:)r* is written with a sign of the *š*-series, to be pronounced, as noted above, /ᶜʸ/ or /ˢʸ/, < PA **č*. Also Aram. *ʔAtu:r* (hence also Old Persian *Atu:ra:*) is a rendering of an earlier **ʔAču:r-*. In Neo-Assyrian the *š*-signs are specifically used for the

Blš?ṣr, Bl?šṣr name of a prince ~ Akk. *Bel-šarri:-?uṣur*
Blṭš?ṣr (< *Blṭšr?ṣr*) name of a courtier ~ Akk. *Bala:ṭ-šarri:-?uṣur*
Nbwzr?dn name of a general ~ Akk. *Nab-ze:r-?iddin*
Nbwkdr?ṣr, Nb(w)kdr(?)ṣr name of a king ~ Akk. *Nab-kudurri:-?uṣur*
Snḥryb name of an Assyrian king ~ Akk. *Si:n-?axxe:-ri:ba*
Srgwn (probably error for **Srgyn*) name of an Asyrian king ~ Akk. *šarru-ke:n*
sa:ri:s 'eunuch' ~ Akk. *ša-re:ši* id.
Tgltplsr name of an Assyrian king ~ Akk. *Tukulti:-apal-e:šara*
Zrbbl name of a Hebrew leader from Babylonia ~ Akk. **Ze:r(u)-Ba:bil(i)*

The list shows a nearly complete coincidence with the traditional transcription of the Akkadian sibilants. This, of course, may mean one of two things: either that by the 1st millennium B.C. the development of PAA **s* > Akk. *š*, PAA **c* > Akk. *s*, PAA **ʒ* > Akk. *z* had been accomplished; or that also the Hebrew *š, s, z* were actually still pronounced [s], [c], [ʒ]. However, there are many reasons which cannot be enumerated here, forcing us the decide for the first possibility[51].

The sporadic Hebrew transcription *s* for Akk. *š* < PAA **s* probably reproduces the Assyrian dialectal pronunciation.[52] On the other, hand in *Blš?ṣr, Blṭš?ṣr* the grapheme *š* (*ši:n!*) may stand for *ś* which was not distinguished from *š* in Hebrew spelling until the early Middle Ages (another evidence of the inadequate rendering of separate phonemes in ancient writing).

PAA **ç* (with which also PAA **č* and **ĉ* had coincided) is traditionally pronounced [ts] by the European Jews, while in Arabic countries an Arabic [ṣ] is pronounced instead. There is no serious reason to suppose that the affricative pronounciaton of the letter *ṣa:de:* is not original and archaic in Hebrew.

2.6.3. Aramaic. The Aramaic transciptions of Akkadian names and toponyms are numerous. We shall not quote them, and shall only limit ourselves to stating that the overall picture does not differ materially from the data of Hebrew sources (Cf. also m. 51).

2.6.4. The Greek alphabet. Nevertheless, there is reason to believe that the PAA type of pronunciation lingered on until the early 1st millennium BC. The Greek of the 1st millennium B.C., with its sole sibilant σ and a sole sibilant affricate ζ ([dz]) offers little evidence for the problem under discussion, and such evidence as there is, does not conflict with the Hebrew and Aramaic data.

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reflex of PAA **č* (discounting historical spellings). The name seems to be an Assyrian dialect stative participle of the D-stirps form the root **?čr/*?tr.*

51. The most important argument in favor of this solution is the complete absence of any traces of the PAA-type of pronunciation in the Græco-Roman transcriptions and in the very reliable Masoretic tradition. Consider also the Greek transcription γάζα for Hebrew *ʕazz-at-* (toponym), Arabic *ɣazz-at-*. Apparently the early pronunciation /dz/ of the "zeta" obviated the necessity of reproducing the reduplication (or length) of /-zz-/ - or /-dz:-/ (?).

52. Neo-Assyrian texts often spell *s*-signs where the literary dialect has *š*-signs. However, the *š*-sign series did not disappear, but was used (1) for the reflexes of *PAA č, or (2) as a historical spelling, influenced by

But note that when the Greeks borrowed for themselves a variant[53] of the Phoenician alphabet, they used the Semitic *ši:n*, not the *sa:mäḵ* for their own [*s*] ("sigma"). The Phoenician *sa:mäḵ* was used for a consonant cluster /ks/ ("xi"), which is more under standable if the *sa:mäḵ* also in Semitic still stood for a consonant cluster, namely */ts/*. The Semitic *zayin* was, of course, used for the Greek affricate ζ ("dzeta"), and also in Campano-Etruscan and Osco-Umbrian it is thought to have marked an affricate. It is true that the Greek application of the Semitic *ṣa:de:* nearly certainly rendering an affricate (/ṭs/), is out of line, because it was used for an allograph of the "sigma" ("san", "sampi"), in which function it went early out of use. But also the Greek ψ.("psi") may be a descendant of the *ṣa:de:*, like its opposite ↑, which in nearly all epichoric Asianic alphabets stands for [t'] or [ts]. Cf. the Greek borrowing from Semitic, γύψος 'gypsum', apparently from a Phoenician **gu:ç*, Akk. *gaṣṣ-* (// **ga:ṣ-* according to "Reiner's law").[54]

2.6.5. Aramaic into Armenian. There are numerous Semitic (Aramaic) words borrowed into Armenian. The regular rendering of the conventional Semitic *ṣ* (PAA **ç*) is Armenian *c*, also used to transcribe Georgian glottalized *c'* (cf. Diakonoff 1979, 1982, 1985).

2.6.6. Old Iranian. There is one interesting case of an Old Iranian transcription of a North Semitic sibilant/affricate. This is *Nabu:kudračira*[55] which occurs in the Bisutun trilingual inscription of the 6th century B.C. and renders Akkadian *Nab-kudur(ri:)-ʔuṣur* where *ʔuṣur* (read [ʔuc̣ər]?) is the Imperative of the verb ***nṣr* < PS ***nc̣r*.

2.7. Akkadian sibilants. We turn now to the behavior of Akkadian supposed sibilants in different phonotactic conditions in actual Akkadian texts of the literary and OB dialects.

2.7.1. We shall begin by quoting E. Reiner's statements of the situation (*LAA*, p. 109 sq.; §6.1-3):

> "(a) {*Z*, *D*, *š*} (i.e., *Z* or *D* or *š*) + *š* = /s:/...
> Examples:
> *riks* + *šu* = *rikis:u*
> *ma:t* + *šu* = *mas:u*...
> *uš:iš* + *šina:ti* = *uš:is:ina:ti*"

"In nonboundary position, the assimilation does not obtain, e.g. ***qadšu* = *qašdu* <...>, not ***qas:u; paššu*, not ***pas:u*, etc."

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the literary norm. This conclusion can be drawn implicitly from the data of Deller's dissertation (ms.). But the *s*-signs (often reduplicated) were also used as a reflex of an earlier *-št-* (/-lt-/, /-sl/), and may represent a /tss/.

53. The letters of the earliest Greek alphabets of the 8th century B.C. coincide in nearly all cases with the Phoenician letters of the local alphabets of Sidon, Byblos, Cyprus, and Cilicia of the 9th-8th centuries. Only the Greek "alpha" is turned upside down and the "sigma" sideways as compared with the Phoenician "aleph" and "ši:n". Moreover. the Greek "san", or "sampi", M (and the Asianic ↑) differ from the configuration of its ancestor "ṣa:de:" in the known variants of the Phoenician alphabet. This may point to an origin of the Greek alphabet from a Semitic variant current at some point south of Sidon. The difference between the Greek "iota" and the Phoenician "yo:d" has another explanation, which we will leave for some fu-

Of all this only *rikis:u* (*š* + *s* = *s:*) looks plausible, but «how come» *t* + *š*, *ṭ* + *š*, *d* + *š* become *s:*? And why **should** double *š* become **s:* in *paššu?*

But if we assume a PAA type pronunciation, we get:

rik(i)c + *su* = *rikic:u* (= /rikits + su/ = /rikits:u/)
ma:t + *su* = *mac:u* (= /ma:t + su/ = /mats:u/)
ʔuč:ič + *su*[56] = *ʔuč:ic:u* (= /ʔuᶜʸ:icʸ-su/ = /ʔuᶜʸ:its:u/)
qadsu = *qasdu*
pas:u = *pas:u* (for why should *pas:u* become anything else?)

(b) For + V*t* + *š* = /*š:*/ Reiner refers to her §6.1.4.3.a, where we read the following example:

"*p* + *it* +*šaš* = *piš:aš*."

This we should suggest reading /p + it + sas/ = /pis:as/, which makes good sense, although of course also /pic:as/ might be expected; but Semitic often tends to preserve the root consonants whenever possible.

"(c) *š* + *š* = /š:/..." Reiner gives a rather complicated definition, but from our point of view *š* = /s/, so the contact /s/ + /s/ of course results in /s:/. Note that the morphophonemic contact *š* + *š* (Old Babylonian spelling) means, in PAA terms, practically a contact of PAA **s*, **ŝ* (also from **-ĉ*), *or* **-č* (read /*-cʸ*/ or /*-sʸ*/?) with the pronoun PAA *šV* (the phoneme PAA **š* does not occur in contact with *-š* at a morpheme boundary). Thus the cases of *š* discussed by Reiner refer only to the OB and later dialects, were all these phonemes had merged, at least in spelling. (Our guess is that, before the final merger, PAA **s* and **š* actually merged into **s*, and PAA **ŝ* cum **ĉ* *and* *č* /sʸ?/ into **ŝ*, see below). However, both /s + s/ and /ŝ + s/ would produce /*s:*/. At the earlier period, where the PAA sibilants still preserved their separate identities, the result of all the contacts might have been different, but the actual picture is not easy to establish owing to the ambiguous OAkk. spelling.

2.7.2. There follows a new paragraph (*LAA* 6.1.4.1. a):

"(a) *Z* + *t* = *Z*". What Reiner marks *Z* are actually, as we think, the sibilant affricates PAA **c*, **ç* (plus **č*, **ĉ*) and *ʒ*.

A regressive assimilation of a plosive to the preceding fricative is not impossible but phonetically not very usual. But if, as we think, the contact is between an affricate and *t*, i.e. a cluster of plosive + fricative + plosive is formed (i.e. **c* + *t*, **ç* + *t*, *ʒ* + *t*, which can be re-written as /tst/, /ṭṣt/ /dzt/, then the situation is different. The pronunciation of a consonant cluster with two plosive summits on both sides of a sibilant fricative is decidedly a difficulty, and the cluster is duly resolved in a natural way into /ts/, /ṭss/, /dzz/ (or, in accordance with E. Reiner's notation, /ts:/, /ṭs:/, /dz:/).

2.7.3. There follows Reiner's paragraph 6.1.4.2. (a):

"(a) + *t* + *z* = *Z*", i. e. at morpheme boundary /t/ assimilates to a following sibilant. An entirely plausible situation. However, if *Z* is a sibilant affricate, as we think it is, then the change is not only possible but inevitable: instead of *x* + *it* + *sas* =

xis:as, *k + it + ṣur = kiṣ:ur* we read *x + it + cac* (+ /x + it + tsats/) = *xic:ac* (= /hits:ats/), etc.

2.7.4. Also the next case of morphophonemic change involving a sibilant does not contradict our hypothesis which even seems more probable than the traditional explanation:

"(b) *Z + Vt = tVZ*".

"Examples:

z + it + qar = tizqar
ṣ-it-but = tiṣbut
z + ut + q:ur + u = tuzaq:uru".[57]

Note that the hypothetical original form **z + ut + q:ur + u* is not based on any textual evidence and is entirely fictitious. It is a common law of Semitic languages, including Akkadian, that a consonant cannot cluster in a medial position with two consonants or one long consonant. The original form is, no doubt, **ʒ + ut(a) + q:ur + u*, although the *-a-* is not morphologically but only phonetically conditioned.[58] Moreover, in spite of Reiner's argumentation, the infix is not + *ta* + C: but certainly + *tan* + with the trivial assimilation + *n* + C = +C:

Our explanation of the examples is:

z + (i)t + qar /dz + (i)t + qar/ = *tizqar* /tidzqar/
ç + (i)t + but /tṣ + (i)t + but/ = *tiçbut* /tiṭṣbut/
ʒ + (u)tan + qur + u /dz + (u)tan + qur + u/ = *tuzaq:uru* /tudzaq:uru/

The reason for this metathesis is more or less the same as the reason for the regressive assimilation in case of "*Z + t = Z*": an affricate in Inlaut (i.e. a phoneme already containing a plosive) is easier to pronounce than in Anlaut when a plosive of the same series follows closely. On the other hand, why /ṣit/ should evolve into /tiṣ/ is not quite apparent. In this particular case our argumentation may be open to doubt, and the problem can probably be settled only by phonetical experiment, but this does not invalidate the argumentation in all the other cases.

Under *LAA* 6.2.1.4. Reiner mentions still another phonotactic change which, if considered from the point of view of the current interpretation, cannot be reasonably explained: *-s+t-*, *-ṣ+t-*, *-z+t-* > *-št-*: *piristu* > *pirištu*, *maruṣtu* > *maruštu*, *maz:aztu* > *maz:aštu*. We read instead *piritstu* > /piristu/, *maruṭṣtu* > /marustu/, *madz:adztu* > /madz:astu/ which makes perfect sense.

2.7.5. Thus all morphophonemic changes involving sibilants as reported by Erica Reiner, are consistent with the theory that the PAA affricate pronunciation of phonemes spelled *z* in the OAkk. orthography, still obtained in the OB dialect of Akkadian. For the cases cited under 2.7.1. above, I should say that our new explanation is the only satisfactory one.

There is a last phenomenon on which we have to dwell. This is the change of *-št-*, *-šṭ-*, *-šd-* > *-lt-*, *-lṭ-*, *-ld-* in Middle and Later Babylonian (MB, NB, LB), and in Middle

Assyrian (MA). The cluster /-st-/ ovbiously could not develop into /-lt-/, so the phenomenon points to an original pronunciation /ŝT/ with lateral *ŝ*. The change in question is, however, rather late. Our suggestion is, that up to the OB stage the *š*-sign series still expressed at least two phonemes, /s/ and /ŝ/, /š/ ousting /s/ by the MB period.[58]

2.8. Summary. According to the evidence of Old Akkadian and Eblaite spelling rules, the evidence of the use of Akkadian signs for the expression of phonemes in other languages, the evidence of the transcription of Akkadian and other Old Semitic words, especially toponyms, in other languages, and the evidence of morphophonemic changes in the Akkadian language, Akkadian, as well as Old West Semitic, retained the following pronunciation of sibilants and sibilant affricates:

Traditional transcription ("Later Orthography")	Actual pronunciation
š	*s* (= /s/, also /ŝ/
s	*c* (= /ts/, later /s/)
ṣ	*ç* (= /ṭs/)
z	*ǯ* (= /dz/, later possibly /z/)

Whether reflexes of PAA *č̣* and *ĉ* were preserved in Akkadian at any stage, we cannot establish. They still are preserved in Arabic (as *ḍ* < **ṣ̂* and *ḏ* < **θ̣* < **č̣*), but in Ugaritic they seem to have become unstable and tended to disappear early (or had, as rare phonemes, no stable spelling). In Aramaic PAA *ĉ* was preserved as *ʕ* < *ǵ* (spelled *q* in some texts) < **ḳ* < **ṣ̂* (Jušmánov 1926). In Phoenician, the Greek transcription Τύρος for **č̣u:r* (but Σιδών for **č̣i:d-a:n-*) seems to imply that a separate reflex of PAA **č̣* was still extant, at least in the 2nd millennium B.C.

PAA **č̣* and *ĉ* did exist in Proto-Semitic, because it can be regarded as proved (a) that PAA **ç* did preserve its affricate status in PS and also in early Akkadian and Western Semitic; (b) that separate reflexes of **č̣* and **ĉ* exist in Arabic and South Arabian, and existed in Ugaritic, Epigraphic South Arabian and earliest Ge'ez; (c) that later they tended to coincide with the reflexes of PAA *ç* **before** the latter evolved to /ṣ/.[59] This means that PAA **č̣* and *ĉ* existed as separate phonemes **and** retained their affricate status in Proto-Semitic.

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ture occasion.

54. "There is free variation between /:C/ and /C:/", Reiner, *LAA* 4.1.2.5., p. 45. Perhaps a better definition would be: "there is free variation betwen /V:C and /VC:/".

55. The text segment in question is, in non-bound transliteration, *N-b-u-ku-d-r-č-r*. The sign *r* has in Old Iranian writing the values *ra* and *ri*, and the sign *č*, the values *ča*, *či* and *ču*, but it is usual to spell /ri/ as *r-i* and /ču/ as *č-u*. The Elamite transcription is *Napkuduraṣir* (-ṣ- = /-č-/),

56. ʔuššušu (or /*ʔučču/) is a secondary verb derived from *ʔeššu* 'new' which, in its turn, derives from **ḥadšu* (or /ḥadču/ through [ḥač:u]).

57. Actually, in the examples quoted above, only *-t-* is the infixed morpheme, *-i-* being phonetically condi-

The European Jews, as is well known, pronounced the *ṣa:de:* as /ṭs/ > /ts/.[60] Only in Arab countries was it replaced by the Arabic *ṣa:d*. We think that the European pronunciation is archaic. Although in later Aramaic *ṣ* may have been pronounced as a sibilant, in earlier dialects (even in Syriac) it was used to transcribe Iranian *č* (and, respectively, in Middle Persian heterographic writing the letter *ṣ* was used to render Iranian *č*, although in Parthian heterographic writing *ṣ* was not made use of at all, and *š* was used both for Iranian /š/ and for Iranian /č/). This may point to dialectal vacillations in the pronunciation of PAA **ç̌* in the different Aramaic dialects. Armenian transcribed Aramaic (even the late Syriac) *ṣ* as their *c*.

In the OAkk. (and Eblaite) orthography, the sign series conventionally transcribed *ś* stands for "any sibilant" (except for PAA **š* for which sometimes a separate sign series was used in OAkk),and the *z*-sign series stands for "any affricate" (including PAA non-emphatic **c* but except PAA **ĉ* which coincided with PAA **ŝ*, and PAA **č* and, in Ebla, also **ǯ*. In the latter case a special *š*-series was used, since **č* had developed into a specific type of sibilant, perhaps palatalized **sʸ*). The *z*-signs thus stand for PAA **c*, **ç* (**ç̌*, **ĉ*), **ʒ* and in OAkk, *ǯ*. In Eblaite **ǯ*, like **č*, developed into a (palatalized?) sibilant, perhaps *žʸ*. Note that Gelb (1980, §0.4, 1981:23) had already postulated a pronunciation [ž] for what in PAA is **ʒ* (Gelb 1980 § O.4., 1981:23).[61]

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tioned.

58. The MA /-lt-/ may reflect a very special, perhaps "refined" and hence Babylonizing pronunciation. The Assyrian correspondence to PAA **s* was probably /s/, hence the further development of *-št-* /-st-/ to /s:/ (probably first to /ts/, then to /s:/) in the Neo-Assyrian period, cf. also 2.6.2 above. Compare the "refined" (educated) pronunciation in pre-Revolutionary Russia of the words *bog* 'god', *blago* '(the) good, grace', *bogatyj* 'rich' as /boɦ-/, /ˈblaɦo/, /boˈɦatyj/. The pronunciation has its origin in the teaching of Church Slavonic to Russians in the 17th-18th centuries by educated Ukrainian priests and professors, /ɦ/ being the regular Ukrainian counterpart of Russian /g/. This is also the origin of the custom, so strange to Western learners, to transcribe foreign names with an *"h"* by Russian /g/ (actually Ukrainian /ɦ/), as *Geine*, *Gumboldt* for *Heine*, *Humboldt*. Lately the transcription with Russian *x* has been preferred, which is due to a progressing development of the Russian phoneme spelled *x* from /ɦ/ to /h/.

59. According to the evidence for *ṣ* = /ç/ adduced above, the affricate pronunciation of the reflex of PAA **ç* was still retained in Akkadian in the late 2nd-early 1st millennium B.C., when traces of separate reflexes of PAA **ç̌* and **ĉ* can no longer be observed.

60. The European custom of pronouncing Hebrew *ṣ* (actually /ç/) as [ts] goes back to the Qimḥî tradition, which is at least as old as the 12th century. But the usage is older. It is true that the great Hebrew-Arabic philologist Ibn-Djanna:ḥ classed *ṣa:de:* together with *sa:mäḵ* and *ši:n*, which is to be expected, since he lived in an Arabophone milieu. However, the affricate pronunciation of *ṣa:de:* in Europe is attested as early as the 10th century. There exists a Latin transcription of the Hebrew text of the Psalms dating from that period (although the original manuscript has not been preserved). The text has been published by Gompertz (1953:24). Here we find following transcriptions *ʔa:rāṣ* = ***arez***; *ḥṣaq* = ***hutcak***; *hiṣṣāḳa:* = ***heïtcecha***; *ṣädāq* = ***cedek***; *ṣəlaḥ* = ***celaH*** (NB the "plene" spelling of the *šəwa:*!). The ms. was written in France and reflects the Old French pronunciation of c as /ts/ or /tš/. I am indebted to M.N. Zislin for this information.

61. This chapter had already been completed when I came across Faber 1985. Her conclusions are similar to mine. Unfortunately, Steiner's 1982 monograph is not available to me.

CHAPTER 3.

AKKADIAN: VOICED AND EMPHATIC

3.0. A survey of the situation in AA. The division of plosives into lax and emphatic, and the lax plosives into voiced and voiceless is observed in all the families of the AA phylum, although with a different degree of consistency. In most West Chadic languages the opposition "lax:emphatic" is lost, and in those that retain the reflexes of emphatics, as for example in Hausa, these may coincide with the reflexes of "lax + velar affricate", or "+ laryngeal", or one of the pharyngeals *ʔ, *ƀ, *ƀʷ (apparently not *h). Egyptian, to judge from the spelling, had lost all emphatics except ḳ which may have evolved into a post-velar [q] (as was also the case in Arabic and in at least some other Semitic languages, and in Berber for double *ḳḳ, but *ḳ > γ). Of the Eastern Cushitic languages Saho-Afar and Somali have preserved the dental and velar emphatics more or less consistently. Agaw, although it has special reflexes for PAA *ḳ, manifests them in ways different from the prototype. The Agaw languages have lost *ṗ and *ṭ, although borrowings into Ethio-Semitic show that they must have retained these phonemes until historical times. Southern Cushitic languages have more or less retained the emphatics, but *ḳ > *q*, etc. In Omotic, some dialects retain reflexes of the emphatics, others do not.

3.1. PAA emphatics in Proto-Semitic. The existence in PS of all PAA emphatics, i. e. *ṗ, *ṭ, *ḳ and the affricates *c, *ç, *ĉ and *ŧ cannot be seriously doubted, except perhaps in the case of *ŧ.

As to Akkadian, although the emphatic consonants are not distinguished from the lax in the OAkk. orthography (nor are the voiced distinguished from the voiceless), the fact that they appear in the Later Orthography in exactly those roots which can be shown to have had emphatics in PAA, shows that they had always existed.[62] Nevertheless, a discussion of their phonetic character is useful if only because it has a bearing on our interpretation of Sumerian phonology.

By the same token, also the opposition of "voiced:unvoiced" has always existed in Akkadian (and in PS). Lately a suggestion has been made that the opposition in Akkadian (and in PS?) may have been not between voiced and unvoiced but between lax and tense (NB tense should not be confused with emphatic; thus, the Northern Caucasian languages clearly have a contrast betwen lax and tense, but they also distinguish an "emphatic", namely glottalized series of consonants). The suggestion is based on the fact that the opposition tense: lax is areally typical in the Near East, occurring in Hurrian, Elamite and probably Sumerian, and possibly in proto-Dravidian. However, the Akkadian (and PS) voiced *b, d, g* and unvoiced *p, t, k* reflect the PAA *b, *d, *g* and

62. The later *q*-signs were in the Old Orthography, together with the later *g*- and the *k*-signs, used indiscriminately for any velar. For *ṭ*, the Later Orthography had only two specific signs, *ṭe* (also used for *ne*, *bil* etc., also for *dè*) and *ṭu*, which in the Old Orthography was used for *tun*. However, for *ṭa* the Late

*p, *t, *k respectively. One may argue that the opposition might have been between *p, *t, *k and *p:, *t·, *k· in PAA itself. In favor of this argument one may adduce the fact that the supposed PAA *b, *d, *g are reflected as unvoiced in some Cushitic languages (e.g., in Yaaku (Mogogodo)), and in a number of Chadic tongues. I don't think I can dismiss this argumentation absolutely, although, of course, the great majority of AA languages has no opposition between lax and tense and very few signs of positional difference between *b, *d, *g initial and medial. If the opposition "lax:tense" was lost, initial lax would probably develop into unvoiced plosives, and medially they would develop into voiced ones, which is the case in Sumerian, but not in AA. We shall return to this question from another view-point in the last chapter.

Returning to the problem of the emphatics, we would like to remind the reader that the term is highly conventional and does not mean anything except that the consonants of these series are different from the "simple", or "non-emphatic" voiced and unvoiced consonants. What may have been their phonetic manifestation at the different moments of the historical phonetic development, is not of itself apparent.

Only one feature of the "emphatics", which has fundamental value, is clear: they are in opposition to the "lax" consonants both voiced and unvoiced, and hence their own voicedness or unvoicedness is phonologically irrelevant. Therefore, when we transcribe them in PAA as *ṗ, *ṭ, *ḳ, *ç̣, *č̣, *ç̌, *x̣, it is purely a matter of convention. We could just as well have used the symbols *ḅ, *ḍ, etc.

Actually, the observed reflexes are, in the different families of AA, as follows:

I **Language families and branches**	II **Conventional transcription for PAA**	III **Reflex voiced**	IV **Reflex voiceless**	V **Reflex with change of tongue position**
Southern Semitic	*ṗ	*ḅ > *b*	-	-
	*ṭ	-	*ṭ*	-
	*ḳ	-	-	*q*
	*ç̣	-	*ç̣ > *ṣ*	-
	*č̣	*ǯ > *ḍʰ > *ḍ*	-	-
	*ç̌	*ǯ > *ḍ*	-	-
	*x̣	*ḡ > *ʕ* (?)	-	-
Northern Semitic	*ṗ	-	*ṗ > *p*	
	*ṭ	-	*ṭ*	-
	*ḳ	-	*ḳ	> *q*
	*ç̣	-	*ç̣* (> *ṣ*)	-
	*č̣	-	*č̣* (Aram. > *ṭ*, elsewhere *ç̣ > *ṣ*)	-
	*ç̌	Aram. *ǯ > *ɣ* > *ʕ*	*ç̌ > *ç̣ etc.	as Col. III
	*x̣	*ɣ* > *ʕ* (?)	-	-

Berber	*ṗ *ṭ, -ṭṭ- *ḳ, -ḳḳ- *ç, -çç- *č, -čč- *ĉ, -ĉĉ- *ẋ	*ḅ > b > ḍ *ǧ > γ ǯ > ẓ ? ? -	- -ṭṭ- - -ss- - - -	- - -qq- - - - zero
Somali and some other East Cushitic	*ṗ *ṭ *ḳ *ç *č *ĉ *ẋ	Som. *ḅ > b Som. ḍ Som. -g- - - Som. ḍ-, d- ?	- (Sidamo ṭ) (Sidamo ḳ) (Hadiya č) (See Ch.1, sub. č) č (Saho, Afar, Oromo ḳ)	- - Som. q - - - -
Omotic: Kaficho	*ṗ *ṭ *ḳ *ç *č *ĉ	- - - - - -	ṗ ṭ ḳ ? č-, č *č?	- - - - - -
Egyptian	*ṗ *ṭ *ḳ *ç *č *ĉ *ẋ	- *ḍ > d - -ǯ -ǯ -ǯ ?	*ṗ > p - - - - - ?	- - [q] (transcr. ḳ) - - - ?
Chadic: Hausa	*ṗ *ṭ *ḳ *ç *č *ĉ *ẋ	ḅ - - - - - -	- ṭ ḳ ç ç ç ḳ	- - - - - - -

Chadic: Bauchi North	*ṗ	-	*ṗ	-
	*ṭ	-	ṭ	-
	*ḳ	-	ḳ	-
	*ç	-	ç	-
	*č̣	-	č̣	-
	*ĉ	-	ĉ, etc.	-
	*x̣	Jimbin *g*	Warji ḳ	-

A perusal of the above table shows that the reconstruction of the PAA emphatics as **ṗ*, **ṭ*, **ḳ* etc. has no advantage over a reconstruction **ḅ*, **ḍ*, **ǵ* etc.; if we retain the first, this is mainly on typographical grounds and owing to tradition.

3.1.1. However, for the reconstruction of the North Semitic emphatics, and more specifically the Akkadian, we shall prefer the unvoiced variants for the following reasons:

(1) PAA **ṗ* develops in North Semitic[63] into *p*.

(2) PAA **ṭ* is in the Later Orthography reproduced by a sign series which, in its turn, is reproduced as τ (*tau*) in Greek[64] and *ṭ* in Urartian; the latter phoneme was reproduced by Greek *t* but once as θ (*theta*), read, for the early period, [th]), and as *t* in Armenian,[65] which is also used to reproduce the South Caucasian (Georgian) glottalized *t'* (while Arm. *tʕ* [th] ~ Georgian simple *t* ~ Greek θ).

(3) In the same way, the Akkadian reflex of PAA **ḳ* is a *q*-series reproduced by Greek κ (*kappa*) and Urartian *ḳ*. The latter is transcribed by Arm. *k*, which is also used to reproduce Georgian glotalized *k'* (while Arm. *kʕ* [kh] corresponds to Georgian simple *k* ~ Greek χ (*khi*).

(4) Greek and Aramaic transcriptions show that PAA, OAkk. **ç* had developed into *ṣ* in the 1st millennium B.C. (Greek *sigma*, Aramaic *ṣ*).

This, surely, is enough to show that the Akkadian emphatics (and probably all Northern emphatics) were pronounced voiceless, at least by the beginning of the 1st millennium B.C. and, probably, always.

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63. At what point of time? This cannot be established. Since OAkk. and Eblaite writing systems do not have special sign series for **ṗ*, **ṭ*, **ḳ* and have only one series for all affricates (except **č* and, in Ebla, **ǯ*. To read, as suggested above, [t^{y}], [d^{y} or [tɹ], [dɹ], and since the reflex of PAA **ṗ* is different in South Semitic (*b* < **ḅ*) and in North Semitic (*p* < **ṗ*), and since the diferentiation is obviously post-PS, one can conceivably as well envisage the phoneme surviving into OAkk. and lost in OB, as suppose that it disappeared as a special phoneme at a post-PS but pre-OAkk. period.

64. Akk. *t* is represented by Greek θ [th] and was in Late Akkadian pronounced, perhaps but not necessarily under Aramaic influence, as [th] aspirated just because it was lax. Greek θ also reproduces Armenian *tʕ* [th] and, consequently, Urartian *t*. The differences between the Greek transcription of Akk. *ṭ* (Greek τ in all cases), and of Urartian *ṭ* (Greek vacillates between τ: usually, and θ: seldom) points perhaps to a difference in the pronunciation of the Akkadian emphatic which was no longer glottalized, and the Urartian one which, judging by its Eastern Caucasian prototype, may have been glottalized, i.e. was a phonetically complex sound [t+'] and in this respect similar to Greek θ = [t+h].

65. The Armenian *p*, *t*, *k* (Eastern dialects) may be regarded as tense, while in the Western dialects they may have been lax, since they have evolved into voiced stops. They are unmarked anyway.

3.1.2. The Egyptian transcription of a possible OAkk. **ṗ* is not attested; *ḳ* is transcribed as *ḳ* [q], and all the other emphatics as voiced, certainly because the opposition "voiced : unvoiced" was irrelevant for emphatics. Yet there may have been other reasons, too. Note that we have no way to establish whether in Egyptian PAA **ṭ* really developed into [d] or whether PAA **d* developed into Eg. **[ḍ], which may have been the actual pronunciation of the Egyptian *d*-series of signs; or the scribes might not have distinguished between [ḍ] and [d] in writing. So many ancient writing systems did not bother to distinguish acoustically similar phonemes (2.5.1., 2.6.2. Thiel 1975). If the latter hypothesis were correct, then, of course, in transcribing Semitic [ṭ] the Egyptians had actually no choice but the *d*-signs. Note that in the 1st millennium B.C. Akkadian and Aramaic scribes transcribed the phoneme which is supposed to have been *d* in the Old and Middle Kingdom, as their *ṭ*, e.g. *Ṗṭwsry* ~ Eg. *pḍ(j)-ywsr*.

Thus we do not think the Egyptian transcription is quite relevant to the problem under discussion, and probably we may safely assume, that the North Semitic "emphatics" were unvoiced.

Within Chadic, "emphatics" are only in a minor part derived from PAA "emphatics". Phonetically, they are mostly implosives.

3.2. The character of the emphatics. A more complicated problem is that of the character and place of the articulation of the "emphatics". In modern AA the phonetic manifestation differs: the "emphatics" are velarized or uvularized[66] in Arabic and apparently in Berber, glottalized in South Arabian, Ethio-Semitic and in part of Cushitic, either implosive or glottalized in Chadic. As to Northern Semitic, it is obvious only that they never were aspirated, as all lax plosives were at least in the 1st millennium B.C., when the unvoiced lax plosives were transcribed as aspirated in Greek and Armenian transcriptions, irrespective of position. Here are the data:

Greek transcriptions (2nd century B.C.-2nd century A.D.): of **Akkadian:**
ṭupšarru:t- 'scribal art' τοφσαρους, *i:puš* 'he made' ιφος, *urrik* 'he prolonged' ορριχ (etc., cf. 5.9.7.)

of **Phoenician:**		of **Hebrew:**	
Tinni:t	θινιθ	*Tirṣa:*	θερσά
pa:ne: 'face'	φανε	*parʕo:š* 'flea'	φαρώς
ba(r)rakô 'blessed him'	βαραχω	*Ku:š*	Χούς
ləbaʕl 'to (the) Lord'	λυβαλ	*Akkad*	Αχάδ (!)
bun- 'son'	βυν	*Karkəmi:š*	Χαρκεμίς
nado:r 'devoted'	ναδωρ	*Qəriyyôθ*	Κιριώθ
qu:l:o: 'his voice'	κουλω	*Qo:raḥ*	Κορέ

of **Aramaic:**		**Armenian** transcriptions of **Aramaic:**
to:(ʔ)ma: 'twin'	θωμάς	*pʕrkan* < *pərqa:n* 'ransom'
ṭəli:θa: 'girl'	ταλιθά	*kʕankʕar* < *kankar* 'talent (weight)'
qu:mi: 'rise (f.sg.)!'	κουμι	*šukay* < *šu:q-a:* 'street, market'
šəβaqta:ni: 'you abandoned me'	σαβαχθανι	*atʕutʕay* < *ʔᵃṯu:ṯ-a:* 'letter' < 'arrival'
	(*qt* > **kt* > *ḵt*)	*šapiray* < *šəppi:r-a:* 'sapphire'
		tłay < *ṭəlay* 'boy', etc.

Apparently also the voiced lax plosives were aspirated, but both the Greeks and

66. Not pharyngealized but uvularized. The term was introduced by N. V. Jušmánov and used by Dolgopolsky (1977:11-13), cf. Hoberman 1985:223.

Armenians lacked orthographic means to distinguish aspirated [b^h, d^h, g^h] from non-aspirated [b, d, g]. Note, however, the similarity of transcription of intervocalic *b* and intervocalic *-w-* in the Greek translation of the Bible: *Da:wi:ḏ* ~ Δαβίδ, Ḥaṣarmawät ~ 'Ασάρ-Μάβεθ etc. Likewise, intervocalic *-ḡ-* and historical **γ* (in any position; distinguished from ʕ transcribed zero) are, similarly, transcribed as γ: *ʕmrh* [γŏmo:ra:] ~ Γομορρά ~ Arab. *γuma:ra; pʕwr* [pəγo:r] ~ Φογορ ~ Arab. *fuγa:r-*. Moreover, Hebrew [γ] (spelled ʕ) could be used to transcribe Akkadian intervocalic *-ḡ-* [-ḡ]!: *Kdrlʕmr* (Elamite via Akkadian *Kudur-Lagamar*), in the Septuagint Χοδολλογομόρ; cf. also *Tdʕl* [tidγal-], Septuagint Θαργαλ//l. Θαδγάλ < Tudxaliya, with *-x-* = [γ].

In the Masoretic tradition of Biblical Hebrew and Aramaic both the unvoiced and voiced plosives are marked aspirated, but only after vowels (in a few cases of the so-called *shəwa medium* apparently also after consonants). The history of Neo-Aramaic dialects also shows that both the voiceless and voiced were aspirated in post-vocalic position (later becoming fricatives, which also happened in Medieval Hebrew).[67]

On the evidence of Greek transcriptions, and also because of some other considerations, it is often thought that in Akkadian the lax voiced and unvoiced plosives were aspirated (in all positions) only at the Late stages and under Aramaic influence. However, aspiration of lax plosives as opposed to tense often occurs in different languages, and the date of this phenomenon in Akkadian cannot be ascertained.[68]

3.3. The *ṭ*-sign series of the Later Babylonian orthography was never used for transcribing Hurrian, Hittite, or Elamite words. This has no relevance for judging of the phonetic manifestations of *ṭ* in Akkadian, because all three languages in question used spelling rules derived from the Old Cuneiform Orthography, and although the Elamite scribes temporarily used Old Babylonian as the official language in the 2nd millennium B.C., they never strictly adhered to the rules of the Late Orthography as developed in Southern Babylonia.

More important is the problem of transcription of Sumerian words into Akkadian. The Old Babylonian and later Akkadian scribes, transcribing Sumerian words and Sumerian borrowings into Akkadian, distinguished only sounds rendered by their own *d*-sign series and those rendered by their *t*-sign series. As is clear from all which has been stated above, this does not necessarily mean that these series could not be either polyvalent, or inexact in rendering the Sumerian phonetics. The overwhelming majority of Sumerian borrowings into Akkadian were probably borrowed not from native Sumerian speakers but from the Akkadian scribal intelligentsia who learned their

67. Thus plosives in the case of *p, k, b, g* (> [p, k, b, g] initially and after consonant; > *f, x* (or *ḫ*), *v*, γ after vowels), but mostly not in the case of *t* (which is always aspirated) and *d*; however there are differences in the reflexes from dialect to dialect.

68. The later development of "vowel + lax aspirated plosive > vowel + fricative" and "consonant + lax aspirated plosive > consonant + lax non-aspirated plosive" certainly occurred in Aramaic. As to Hebrew, here this development may be due to Aramaic influence. The earliest transcription of a Hebrew text in Latin letters (see Chapter 2, n. 60) uses *f* and *v* for postvocalic **p* and **b* and *th* and *ch* for postvocalic **t* and **k* (this may mean change into [th], [kh] or [θ], [x]). Postvocalic *d* and *g* are not distinguished from initial and postconsonantal *d* and *g*, as is also the case in Modern Hebrew in spite of the fact that the Masoretes denote aspiration also for postvocalic *d* and *g*.

Sumerian at school (the **é-dub(-b)a**), and pronounced it according to the transcriptions in their Akkadian-Sumerian vocabularies.

However, there exist some indications that the Sumerian plosive(s) usually transcribed in Sumerian by the Akkadian *d*-signs could correspond to Akk. /ṭ/, namely in the two borrowed words Akk. *ṭupp-* 'tablet (for writing)' < Sumerian ***dub*** (> Elamite *dip.i*) and *ṭurr-* Akk. 'knot', Sum. **dur**; also the Sumerian **dumu** 'child' is phonetically transcribed, when rendered in Eme-sal, the Sumerian "women's language", as **ṭu-mu = du$_5$-mu**. But note that in the Later Orthography the *ṭ*-series is in Akkadian incomplete, and all *da*-signs can also be read as *ṭa*. As for *di* and *du*, the reading *ṭí*, *ṭú* is attested not only for OAkk, which altogether does not distinguish voiced from voiceless, and lax from emphatics, but not infrequently also later. However, Sumerian phonetics and the relation to the Akkadian shall be discussed in more detail in the last chapter of this book. Here we note this fact only in connection with the discussion of emphatics in Akkadian itself.

3.4. Emphatics and glottalization. Glottalized plosives occur in the Eurasian area also in North Caucasian, South Caucasian (Karthvelian) and, according to a new theory, did also occur in Proto-Indo-European (Gamkrelidze-Ivanov 1978; on the doubtful validity of this hypothesis, see, *inter alia*, Džaukjan 1986). PAA belongs to the same general zone, and glottalization of the emphatics was apparently the most prevalent form of emphatization. Thus, in the different branches, especially in the peripheral zone, it seems most probable that the PAA emphatics were also glottalized. In PS as well, it seems most probable that the emphatics were originally glottalized. It has often been suggested that the glottalization in Ethio-Semitic is due to a Cushitic substratum, but this cannot explain the glottalized status of the emphatics in South Arabian. At the same time, if the hypothesis is correct, according to which the PAA **š́*, **č́*, **ḉ*, **ǯ́* series passed through a stage of aspiration in certain branches of Semitic, then the velarized type of emphatics must be very old, because one cannot pronounce a glottal stop simultaneously with a laryngeal aspiration. In other words, a phonetic realization [*t'h] is not plausible. The possible preservation of glottalized emphatics in OAkk. and Eblaite (or at a still earlier stage of the Northern Semitic dialects) might account for the peculiar development of the **š́*, **č́*, **ḉ*, **ǯ́*-series (palatalized, or including a frictionless dental/alveolar continuant, not plosive + aspiration). Nevertheless, I think it probable that, at least at the later stages, the Akkadian emphatics were no longer glottalized. There is a device in the Akkadian cuneiform orthography: using signs of the type VC+VC to express the sequence [VC'VC]. Were the emphatics (Ç) glottalized [*C'], an obvious way to spell the sequence /VÇVC/ = [VC'VC] would be to use the same device, which is not the case. From this I conclude that the glottalization of emphatics was dropped in Akkadian at a rather early date.

3.4.1. Akkadian geminates. Akkadian, as nearly all other Semitic languages, distinguished betwen short consonants and long ones, so called "geminates" (see Reiner LAA:43-6 for a detailed discussion). A special device to render "geminates" was, more or less optionally, introduced in the Later Orthography. It consisted of writing the signs CVC-CV for /CVC:V/. But one should keep in mind the Reiner law, according to which /V:C/ is equivalent to /VC:/, and hence the spelling CVC-CV could appear

in free variation with CV-CV and with CV_1-V_1-CV (on this spelling, see Chapter 5 in more detail)

3.4.2. Hurrian tense consonants. In Hurrian, a similar device was used for spelling tense consonants: neither Hurrian nor its nearest relative, Urartian had long consonants or long vowels (the later – unless positionally conditioned). It has lately been suggested that Akkadian, like its adstratum and substratum languages Hurrian, Elamite and Sumerian, distinguished "lax:tense", and that the Akkadian emphatics were actually tense (Wilhelm 1983:160, suggested as one alternative). If that were the case, one would suppose that the Akkadians should also use the same device of reduplication to express their tense (=emphatic) consonants as the Hurrians used (Thiel 1975). This is, however, impossible for two reasons:

1°: the VC-CV device for the tense consonants was introduced by the Hurrians who had never adopted the Later Cuneiform Orthography, and hence had no special sign-series for emphatics. Using Akkadian "emphatic" sign-series (already invented by that time in Babylonia) was therefore out of the question for the Hurrian scribes, and so they introduced another device.

2°: the Akkadian scribes had by then already introduced both the special series for emphatics, and the VC-CV device for their long and geminated consonants.

3.4.3. Akkadian emphatics in root-structure. Since we have shown above that the Akkadian emphatics could hardly still have been glottalized, and that, judging from the development of their /š/ series, they had no special reason to pass over from glottalization to velarizing their emphatics, there seems to be no reason why they could not have been tense, as suggested by G. Wilhelm, or abruptive.

The hypothesis suggesting that the manifestation of emphatics in Akkadian was essentially different from that in other Semitic languages is supported by the following fact:

> Out of all known Semitic languages, only in Akkadian are two emphatics in the same root always forbidden. This is not the case in Arabic, for example, with its velarized-pharyngealized emphatics, nor with the southern Semitic glottalized emphatics. This means that the articulation of emphatics in Akkadian must have differed from both. It is a plausible guess that the same was the case in the substratum (e.g. Hurrian and, as we shall see below, Sumerian) and in the superstratum (Aramaic), and that the Akkadian emphatics were tense.

3.4.4. Akkadian emphatics as substrata in Aramaic. Moreover, there is a good argument in favor of this solution. The Aramaic dialects of Mesopotamia (or migrated from Mesopotamia, as nearly all the Neo-Aramaic dialects) had Akkadian as their substratum. It is very probable that they would retain certain features of the Akkadian articulational base (as Armenian preserves that of Urartian), and among them the pronunciation of the emphatics.

Therefore I have turned to the Neo-Aramaic manifestation of Semitic. According to K. G. Tsereteli (1964:19-29), the reflexes of the PS **ṭ*, **ḳ*, **ṣ* (i.e. PAA **ç*) are in Neo-Aramaic dental abruptive /t/, and uvular abruptive /q/ (/ḳ/, also abruptive, is encountered only in borrowings); *ṣ* having coincided with /s/. Velarization or pharyngealization is not recorded, except for the uvular /q/. But according to data collected by me from a native speaker of Neo-Aramaic with a Semitistic background, I found that PS **ṭ*, **ḳ*, **ç/ṣ* have rather developed into tense [t·], tense [q·] and tense

[s·], clearly to be distinguished from the abruptive *t* and abruptive *k* in borrowings, and from *s* coming from PAA **c*.[69]

3.5. Tense emphatics in Akkadian. This may allow us to formulate the hypothesis that Akkadian emphatics, due to substratum influence, were tense: *[p·] (?), [t·], [q·], and [c̣]. However, we have already mentioned that there may have been more sibilant affricate emphatics than the latter. Of course, the Akkadian tenseness (or abruptness?) of the emphatics was incomparably clearer than in Neo-Aramaic where it is hard to notice even for a trained phonetician.

3.6. Laryngeals and emphatics. The typical Afrasian and Semitic laryngeals *ḥ* and ʕ must not be considered emphatic, if "emphasis", as we think, originally meant glottalization. They are traditionally considered emphatics because in Arabic all the latter are uvularized, and therefore influence the contact vowels in the same way as laryngeal /ḥ/ and /ʕ/. These two phonemes had also a distinctive influence on the neighbouring vowels in Akkadian and Eblaite, /a/ and /i/ developing to what conventionally is denoted as *e*; but, characteristically, the real emphatics have no such influence upon the vowels. This is another piece of evidence of a non-laryngealized pronunciation of the Old Semitic emphatics.[70]

3.7. Voiced : voiceless. The Semitic lax (i.e. non-emphatic voiced and voiceless) consonants occurring in Akkadian (and in other North Semitic languages), are regularly transcribed as, respectively, voiced and voiceless in all foreign writing systems. Only Egyptian sometimes transcribes Semitic *g* by using the *q*-signs series. This is the result of the rather early unvoicing of the voiced plosives in Egyptian itself.

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69. Mr. Michael Sado, a speaker of the "central" Neo-Aramaic dialect. He kindly informed me also of some characteristic features of the pronunciation in Ṭu:r-ʕAbdi:n (under appreciable Arabic influence), Djilu: ([k·] with no or weak uvularization), and Urmiya (strong Turkic influence). The difference between [s] and [s·] (< *ṣ*) in minimal pairs was quite clear. We selected Inlaut forms to exclude the influence of the vowels which, as is well known, are in Neo-Armaic harmonized in accordance with the presence or absence of historical emphatics.

70. On the pronunciation of emphatics in Neo-Aramaic see now Hoberman 1985. On p. 223, Hoberman describes phonetical characteristics of Arabic and Aramaic emphatics in some detail, with references to works of Blanc (1953), Card (n.d.) and Dolgopolsky (1977). Hoberman rigthly points out the fundamental difference in the articulation loci for the Arabic emphatics and for the pharyngeals *ḥ*, ʕ. He describes the Neo-Aramaic emphatics on p. 224 as "flat", because "pharyngealization is apparently a minor aspect of this long component". He also notes that in Neo-Aramaic "pharyngealization spreads both rightward and leftward throughout a word unless blocked by one of the segments *i:*, *y*, *š* and tense, word-final *i*, all of which are high and non-back". This phenomenon is not known to have occurred in Akkadian, although the change of *a*, *i* > *e* under the influence of the uvulars *x*, *γ and uvular (?) *r*, as well as of the pharyngeal **ḥ* and **ʕ* are probably a typologically cognate phenomenon. Hoberman calls the resulting form a "flat word". However, the prerequisites for creating a "flat word" are different in the various dialects. Thus in Urmian **ṣ*, **ṭ* and **ḥ*, **ʕ* produce a "flat word", but in a neighbouring Jewish Aramaic dialect **ʕ* alone is not sufficient. Yet the presence in the same word of two or more of the following consonants are conducive to the production of a "flat word": "the labials, *r*, *x*, γ and historical *ḥ* and ʕ". The latter situation, if we exclude the influence of labials, reminds one of the Akkadian. Thus the change of *a*, *i* > *e* in the presence of *r*, *x* and historical *γ, **ḥ* and **ʕ* may have been a signal of "flattening" of the Akkadian word. All this seems to point to a certain similarity between the (Neo-)Aramaic and the Akkadian emphatics. Hoberman gives no articulational description of the Neo-Aramaic emphatics, only stating that "conservative Neo-Aramaic... dialects are impressionistically similar to vernacular Arabic". As pointed out above, my own impression was that the Neo-Aramaic emphatics are tense and not pharyngealized (the phoneme [q] is of course uvular).

CHAPTER 4

PROTO-AFRASIAN: ROOT STRUCTURE AND THE SONANTS: IMPLICATIONS FOR AKKADIAN

4.0. Introduction. A clear idea of the PAA sonant system is indispensable for the understanding of the PAA root structure, and this, in its turn, is the clue to the understanding of AA grammar in general, and of Akkadian in particular.

But in order to gain an understanding, before we turn to the purely phonetic problems of the sonants, we shall have to begin with an excursus into the problems of the root.

We ought to base our discussion on the whole corpus of information from all the AA languages. Unfortunately, this is not feasible. The great majority of AA languages known to us belong to the new stage, and the rules of word- and root-formation have been so much distorted (developed should, of course, be the correct word)in comparison with what these rules were at the level of PAA or even PS, that delving into the maze we could never hope to emerge safely. The only way is to turn to the few AA languages of the Old Stage which still were near enough to the PAA structure.

Of such languages the only ones that are available are actually the Semitic ones. Also Old Egyptian belonged to the Old Stage, but it, as well as Middle Egyptian, is known to us exclusively in its consonantal skeleton, which is not enough for serious conclusions on word structure. Of the others, some Cushitic languages have preserved a number of important features from the Old Stage, but they are far too insufficiently studied. Thus, we have to limit ourselves to Semitic, but our practice in working on historical lexicology shows that the conclusions drawn from Semitic are plausible enough for explanations of pheomena also in the other AA languages – due consideration being given to possible later developments and probable substratum and adstratum influences.

4.1. Nominal and verbal roots. It is well known that Semitic roots can be clearly subdivided into verbal and primary nominal ones. In the verbal roots the vocalism has a functional role and changes according to certain apophonic laws which have been studied by Kuryłowicz,[71] while the vocalism of the primary nominal roots is in the PS prototype a stable part of the root morpheme itself. This stability of the vocalism of the root morpheme in non-derivative nouns is completely preserved in Akkadian and can be reliably reconstructed in the Northern Central Semitic languages, where the variations in vocalism depending upon status and number of the noun are secondary.[72] This stability is less obvious in the Southern Semitic languages, in the first place be-

71. Kuryłowicz 1958 and 1961. Of these two works, in our opinion it is the first which is nearer to the correct understanding of the problem.

72. The variations in the vocalism of Hebrew and Aramaic nouns depend mostly upon the historical stress conditions at a comparatively late stage in the develoment of these languages. One should especially note the infixation of *-a-* in the plural of a certain set of noun patterns in the North Central Semitic nouns, both primary and deverbal, on which see below in Chapter 5.

cause of the profuse growth of the system of "broken plural": *Pluralis fractus*,[73] and then also because of the nearly unlimited freedom of forming new deverbal stems, mainly by changing the vocalism but also by adding one of the few existing affixes. Besides, the stability of the primary nominal vocalism is somewhat disturbed by the widely spread usage of forming various word-base patterns for diminutive nouns by changing the vocalism of the root morpheme not only in derivative, but in primary nouns as well; this device obtaining also in Northern Semitic languages.[74]

4.1.1. The function of vowels. Nevertheless, the Southern Semitic languages preserve at least one feature typical of the PS non-derivative root morpheme, and perhaps its most important feature, namely, the non-functional character of the vocalism (in the singular). In other words, while the difference between the vocalism in the noun patterns *faʕl-*, *fiʕl-* *faʕi:l-*, *faʕu:l-* derived from verbal roots corresponds to a difference in their semantic and/or grammatical function, the similar or other differences in the vocalism of various primary nouns have no connection with their semantics (see Diakonoff 1987 for more detail).

4.1.2. A survey in AA. It should be noted, that this cardinal difference between primary nominal and verbal roots is certainly fully operative only in Semitic and Berber, and only partly in Cushitic. In Egyptian, a noun denoting action became a verb through the syntactical role assigned to it, e.g. by either subjoining to it a noun or a pronoun in the genitive to express the logical subject of the action, or by turning a noun into a verb of state or quality by joining to it a suffix (originally a pronoun in the direct case or zero) denoting the experiencer of the state. Whether or not for the verbal predicate a certain stable vocalization pattern distinguishing it from primary nouns was also obligatory in Egyptian, is not quite apparent.[75] The variation of the vocalism of verbal roots is, as we shall see below, in Semitic and obviously also in Northern and Eastern Cushitic and in Berber, the result of the creation of stable prefixal finite verbal forms. We do not know for sure whether such forms had existed in Egyptian at some earlier

73. *Pluralis fractus* ("broken plural") is a device of changing the vocalism of the noun in the singular to an entirely different one. The changed form was originally used as a "collective noun", or "abstract noun", or "augmentative form" but afterwards became the plural form of the original singular; cf. the Akkadian form $C_1aC_2aC_3$-*t*- denoting abstraction: *wabar-* 'foreigner', *wabar-t-* 'foreign trading station' but in Ge'ez *nəgu:s* 'king', pl. *nagas-t; ša-*$C_1C_2aC_3$- denoting quality in the highest degrce; in Arabic, color-quality: Akk. *ša-pša:q-* 'greatest dificulty', Arab. *ʔa-swa:d-* 'black', but Arab. *baḥr-* 'sea', pl. *ʔa-bḥa:r-*; Arab. $C_1iC_2aC_2$- may denote the augmentative, as *ktb* 'writing (signs)', *kita:b-* 'letter, book', but *kalb-* 'dog', pl. *kila:b-*, etc.

74. What is meant here, is mainly internal inflection after the patterns $C_1i/uC_2a{:}C_3$-, $C_1uC_2ayC_3$-, as in Akk. *ṣexr-* (< *ṣaxr-*) 'young, small, child', *ṣuxa:r-* 'boy (= servant), youngster'; Arab. *kalb-* 'dog', *kulayb-* 'doggie', *ʔumm-* 'mother', *ʔumaym-* 'mom'. The pattern C_1i/uC_2aC_3-, diminutive and augmentative, is no longer productive in Arabic (for more detail, see Diakonoff 1987).

75. I think the question should be answered in the negative. This is evidenced by the confrontation of two Egyptian verbal forms of exactly the same structure but evincing a difference in vocalization which must be derived from a difference in the vocalization of the word-base at the level of identity of verbal and nominal root patterns. The vowel was here not a morphological inflectional device but a part of the root itself, which is not the case when verbal categories have to be distinguished by vocalization, and the root is reduced to a bare consonantal skeleton. Thus, from the PAA roots **ḫam* > **ḫmm* and **ḫas-b* > **ḥsb* Egyptian produces the grammatically and functionally identical verbal forms *ḥmm* and *ḥsb*; the first one, with palatalized *ḥ* < **ḫ*, must be reconstructed as [ḥimim], but the second, retaining *ḥ* as [ḥasab].

period of language development and later disappeared, and this has a bearing upon the question, whether verbal predicates in Egyptian had specific vocalization patterns.[76]

It does not seem they have or ever had any in Chadic, or in those Cushitic languages where the prefixed conjugation of the verb had been completely ousted by the affixation of an auxiliary verb (whether prefixally conjugated or otherwise) to a root which does not seem to differ in any way from primary noun roots.

It is our suggestion that words expressing action or state should not be regarded at the PAA level as originally verbal nouns with a specific vocalization pattern. Actually, in AA the verb itself emerges as a certain syntactical framework around a noun serving as predicate. Of course, it might in principle be possible that from the start the language formally distinguished (by vocalization or otherwise), separate categories: that of nouns denoting objects, and of nouns denoting state or quality. However, since, as we shall see below, there is good reason to believe that such was not the case, it is legitimate to assume that at the PAA level all roots should be treated in the same way, namely, as nominal.

4.1.3. The role of vowels in Semitic. The transformation of the vocalic system in AA will be touched upon from another point of view below, Chapter 5. Here only a few words on the connection of vocalism and root formation are needed.

A system of six vowel phonemes (*a*, *i*, *u*, *a:*, *i:*, *u:*) typical of Arabic, has also reliably enough been reconstructed for PS. In traditional Semitology it was thought that in Semitic these vowels are never a part of the root, the latter being constructed of consonants alone. In the latter decades, however, this point of view is being more and more abandoned. At present it seems hardly possible to insist upon the vowels being no part of the roots in pronouns, numerals, and in fact, in primary roots generally; moreover, many Semitologists are inclined to consider it possible for a vowel even to be a part of the verbal root (see von Soden 1952 §§50b, 73c, 87a-d, 103b, 107b, etc.). But also at present there exist adherents of the theory asserting that vowels are not and never have been part of **any** Semitic root morpheme.

4.1.4. What is a root-morpheme. Obviously, the answer to the problem, **what** is actually the **root**-morpheme to be separated out of a word-base in PAA and, specifically, in PS depends upon the analysis of the morphological structure of the **word**, since a root morpheme can exist only as **part of a real word**. The notion "root" is an empty abstraction with no real content unless under the conditions existing in real words.

4.2. Syllables. A real word consists of **syllables**. There are two general rules of syl lable-formation in Semitic, and when applied to non-Semitic AA reconstruction they produce plausible results, wherefore we may postulate that in this respect PS repro

76. I think that the question whether there existed prefixed verbal forms at some very early stage of Egyptian, must also be answered in the negative. It has sometimes been argued that the mysterious *-y* appended to the pronominal element in the Egyptian verbs of quality and state, is a remnant of a prefixally inflected verbal copula, something like **y*V-*hi:* etc. In this case, however, we should expect a survival of the inflection itself (as is the case, e.g., in similar Cushitic verbal formations). The *-y* may have been a copula all right, and may even be related to the 3rd person verbal prefix *y*V- in Northern AA, but all the same be a pronominal copula. Let us remind the reader that the verbal prefix *y*V- is, of course, itself of a pronominal origin.

duces the PAA situation. This supposition is strengthened by the fact that in Egyptian, a language belonging not only to another family but even to another subphylum of AA, these rules, obviously, also applied.[77]

The rules of syllable-formation are as follows:

I. No syllable can have a vocalic Anlaut.

II. No syllable can begin with two consonants, or end in two consonants.

The first rule ceases to operate in languages which have lost pharyngeals, laryngeals (and velar fricatives and affricates). Reconstruction of one of these before the vowel Anlaut where such exists leads to plausible Common AA reconstructions.

In languages where syllables may begin or end with two consonants, either one of the consonants is the relic of a sonant, or the cluster is the result of late vowel reduction. The protoforms are to be reconstructed accordingly.

4.3. Nominal root morphemes. Let us now consider the PS nominal root morphemes as a closed system of facts, attempting to deduce the structural principles of the formation of nominal root morphemes exclusively from phenomena existing inside the system.[78]

Of course, we shall not set up a complete list of PS nominal roots. For our present purpose we can limit ourselves to the lists of the more important nominal roots (mostly attested in four preliminarily defined groups of Semitic languages),[79] which have been published in Bergsträsser 1928:181, Gazov-Ginzberg 1965:90 sq., Diakonoff (1965), Fronzaroli (1964-9.) These lists are, in 4.7., classified in accordance with the phonological structure patterns which will be established below.

4.3.1. Investigating the Semitic primary nominal roots (PNR) as a self-contained system, the first thing which we discover is, that there exists a structure of vocalism totally diferent from the one reconstructed for PS as a whole – or, more exactly, for the diachronic level immediately preceding the division of PS in two or several non-contacting dialects. As is well known, and as has already been mentioned here under 4.1.2., six vowels can be reconstructed for PS, three short and three long ones. The

77. The later Egyptian rule of only open syllables (CV) is deducible from earlier rules as formulated here.

78. Here, again, we shall base our discussion on Semitic material only. But it will be seen that, *mutatis mutandis* (e.g., taking into consideration the difference between the typical Semitic development of the syllabic sonants ot **am*, **an*, **al*, **ar*, **aw*, **ay*, **a?*, **u?* and the other types of development of the syllabic sonants in some of the African AA languages, e.g. to **m̥*, **n̥*, **la*, **ra*, **wa*, **ya*, or in the case of the "semivowels" to *u:*, *i:*, *a:*), the rules of nominal word- and root-formation, as formulated below, apply also to other AA languages.

79. Namely, Northern Marginal (Peripheral), Northern and Southern Central, and Southern Marginal. However, classification inside the latter, now loosely subdivided into Epigraphic South Arabian, Modern South Arabian, Northern and Southern Ethio-Semitic, is by far not conclusive, and pooling all these groups into one branch may be premature. Also the Central Semitic dialects have during their history not always been clearly differentiated. The isoglosses largely overlap. The current polemics on historical linguistic reconstruction: genealogical tree pattern vs. linguistic geography (the latter point of view especially advocated by G. Garbini) is, to a great extent, futile. Linguistic geography methods (working with overlapping isoglosses) are legitimate where linguistic contacts exist, while the genealogical tree method becomes necessary when the contacts become severed. Moreover, even in the latter case, adstratum and substratum influence must be largely taken into account.

situation is different in the sub-system of PNR morphemes: for this sub-system certain specific phonological rules can be formulated, namely the following (argumentation and illustrations are to be found below in 4.5.-4.7.).

I. With the exception of a few cases where vowel length appears to be secondary (e.g. **ču:m-*[80] 'garlic', *ma:ʔ/y-*[81] 'water', **ba:b-*[82] (< **baʔ-baʔ-*) 'door', long vowels are absent in PNR.

II. While in the vowel scheme as reconstructed for PS generally, the vowel *u* appears as a separate phoneme, in the sub-system of PS-PNR morphemes *u* is an allophone of the *i*-phoneme appearing in contact with the labial consonants *p* (+ **ṗ*, + **f*), *b*, *m*, also (in certain roots only) with *g*, *k*, *ḳ* (when from **gʷ*, **ḳʷ*, **kʷ*), and in a few cases, in contact with the glottal stop *ʔ*.[83] Thus, in the sub-system under consideration there seems to be only two vowel phonemes, /a/ and /i||u/. We may add that, as will be shown below, in unstressed position inside a two syllable stem (word-base), the vowel *a* could, in some Semitic language groups, lose its specific phonetic quality, and could be reflected, in the dialects in question, as *i*. It is not impossible that the difference between the prototypes of the /a/ and /i/ phonemes when under stress, was suprasegmental, e.g. one of pitch, while the characteristic of their articulation base might have been identical. In our reconstruction of the proto-vocalism in the sub-system in question we shall use only the **ə*-symbol for the prototype of *i/u* (without ascribing any definite phonetic significance to this notation), while retaining the *a*-symbol for the prototype of the historically attested *a*-vowel.

III. Lastly, a third phonetic rule obtains for the sub-system of PS nominal root morphemes. It refers to the so-called semi-vowels and sonorants, namely the phonemes *ʔ*, *y*, *w*, *m*, *n*, *r*, *l*. A primary nominal root morpheme may contain either two different consonants or three, and either one vowel or two; but if it contains three consonants and one vowel, then:

(a) the morpheme has invariably the structure $C_1VC_2C_3$;
(b) either C_2 or C_3 is a phoneme of the group *ʔ*, *y*, *w*, *m*, *n*, *r*, *l*;[84]
(c) if it is C_2 that is the phoneme of this group, then V = *a*.[85]

4.3.2. This leads to the assumption that sonants of the Proto-Indoeuropean type are here to be reconstructed, i.e. phonemes which at a certain stage in the development of the language could function both as syllabic (vocalic), and as non-syllabic (consonan-

80. There is no evidence for the vowel being long, e.g. in Akkadian, and length may be secondary, as in Hebrew. In Arabic it is certainly long, but this may be a variant form.

81. Here also, a short vowel is known to appear in certain AA dialects, e.g. Hebrew *mayim*, Aram. *mayy-å*. The reconstructed form is possibly **mḥy* > **maʔy-* > **ma:ʔ* or **ma:y-*.

82. Semitic (and Egyptian) roots of the C_1VC_1, $C_1ŞC_1$, $C_1C_2C_1$ types are to be regarded as derived from a full reduplication $C_1VS\text{-}C_1VS$, $C_1Ş\text{-}C_1Ş$, or $C_1VC_2\text{-}C_1VC_2$.

83. Also the velar spirants, affricates and pharyngeals seem to have had labialized variants.

84. The phonemes enumerated are, of course, those of PS. From Chapter 1, we know that in PAA there existed three phonemes, *ʔ*, *H* and *Hʷ*, in place of PS *ʔ*. Moreover, there is some reason to believe that also the *ʕain* belonged to this group.

85. V can be = *i/u* if the noun is deverbal.

tal).[86] The following rules can now be formulated (symbolizing a sonant as S, a "pure" vowel as V, and a non-sonorant consonant as C):

(d) in a *SV sequence the sonant is non-syllabic > Sem. *ʔ, y, w, m, n, r, l*, and similarly in the other AA families;

(e) in a *SC sequence the sonant is syllabic (Ş̥C) and develops into PS *aʔ, ay, aw, am, an, ar, al* (i.e., it resolves into a diphthong).

Rule (e) does not apply to other AA languages. Thus, Chadic languages very usually develop **i̯, *u̯ > ya, wa; *m̥, *n̥* and even **r̥, *l̥* may be preserved, etc. **H̥, *i̯, *u̯* can also develop into short or long homorganic vowels *a:, i:, u:*, etc.

In PAA, as well as in PS, the sequences *#VS and *#SC cannot occur, either initially or inside the word. However,in PAA initial *SC- does occur, but it develops into PS **ʔa*SC-.

This results from the general rule, applicable as well to PAA as to PS, that a syllable cannot have a vocalic Anlaut. Neither can the sequences *CSV and *SCC occur inside one syllable, which results from another general PAA/PS rule of syllable-formation, according to which no syllable can begin with two consonants or be closed by two consonants (the sequences *CSV and *SCC being equivalent to *CCV and *VCC). If, however, the sequence in question is divided betwen two syllables, then the rules stated above obtain: the syllable sequence *CVC|SV, *CVC|CV are possible, the sequences *#VC|SV and *#SC|CV are impossible.

As to the sequences CS# and CSC#, they constitute a case apart, which will be discussed separately below (4.4.4). For the moment, it is sufficient to state that a *-SCC- sequence is ruled out even if the division of the syllable is *CSC|CV.

4.3.3. The system of vocalism just described being obviously not in accordance with the situation reconstructed for PS at the diachronic level immediately preceding its divison into no-contact dialects, we must assume that our internal reconstruction (back from PS) reflects a certain earlier stage of linguistic development. However, since the six-vowel system can be reliably reconstructed not only for PS but also for Proto-Berber[87] and belongs, therefore, to a single stage earlier than the PS, we may assume it is Proto-Northern Afrasian.

If so, we must go a step further and admit that our reconstructed scheme of vocalism as suggested for the sub-system of primary nominal root morphemes, refers to a still earlier, namely to the PAA diachronic level. The samples given above in Chap-

86. Taking these phonemes to be sonants, we create a difficulty as regards the phonetic interpretation of the prototype of the Sem. *ʔ* (*ʔå̯:läp̯*). The *ʔå̯:läp̯* being a plosive, it cannot be conceived as sonantic. The difficulty is resolved by regarding the *ʔa:läph* as an analogue of the Danish *Stødtone* or "jolt" which is a development of falling pitch on the neighbouring vowel and functions in a non-sylalbic position as consonant. In the following we will contine the usage already introduced in Chapter 1, denoting the syllabic sonants as *H̥, i̯, u̯, m̥, n̥, l̥, r̥*, and the nonsyllabic as *ʔ, y, w, m, n, l, r*.

87. In Berber dialects, the usual vocalism is *a, i, u* which typically corresponds to Semitic *a:, i:, u:*, (on the origin of long vowels see below 5.2. sq); *ə*, usually in free alternation with zero, corresponds to Semitic *a, i, u*, which actually also appear in Berber under certain conditions. This, perhaps, presupposes a vocalism **a, *i, *u, *a:, *i:, *u:* in Proto-Berber. A more or less similar picture appears in Northern Cushitic: Bedja, where /e:/, /o:/ are obviously secondary.

ter 1 show that one can postulate the phonetical rules as stated here for the proto-language of all the Afrasian language families. However, since none of these except the Semitic has been historically investigated in sufficient detail, we shall also in the following limit ourselves to illustrations taken mainly from Semitic; it must however be kept in mind, that the picture which we are reconstructing is considerably older than PS and refers chiefly to the NAA or PAA.

4.3.4. To make the following more comprehensible, one should start from the above stated premise that a root-morpheme never could and never did exist as a fact of reality outside a word. Therefore, in order to study root-morphemes, one should consider, first, the laws of syllable formation, and second, the laws of syllable contacts.

Judging by the unanimous evidence of Semitic languages (which, on the whole, is supported by the evidence of other AA languages),[88] the only possible types of syllables were either |CV| or |CVC|. We have all reasons to postulate this situation already for PAA. However, the rule of syllable formation must be re-formulated to suit the conditions described in 4.3.2. In other words, we have to assume that at the PAA diachronic level not only were syllables of the |CV| and |CVC| types possible,but also equivalent syllable types where either the consonant or the vowel was replaced by a sonant. It will be shown that this assumption allows to formulate a consistent theory of root formation.

For the time being, we shall limit ourselves to primary nominal roots.

4.4. Primary nominal root morphemes. According to the rule formulated above (a sonant in contact with a vowel is a consonant, a sonant in contact with a consonant is a vowel), only such combinations of C, S and V are possible which exclude the clustering of either two consonants or two vowels in one syllable. This means that only the following sequences are admitted in one syllable:

(f) CV and the equivalent sequences SV, CS, SS;
(g) CVC and the equivalent sequences CVS, CSC, CSS, SVS, SSC, SSS.

Other sequences are impossible inside one syllable: thus a syllable of the *SC type is impossible because here S is in contact with C, and hence S = V cannot begin a syllable;[89] a syllable of the *CSV type is impossible because here S is in contact with V, and hence S = C, but two consonants cannot cluster in one syllable. S is here also in contact with C, but if we take S to be a vowel, then *CVV is forbidden because of the clustering of vowels, etc.

4.4.1. This, however, is not enough, because not only the rules of syllable formation but also the rules of syllable contact must be taken into consideration. Starting from the premise that two consonants cannot cluster inside one syllable and thus can neither begin nor close a syllable, we may formulate the following rule of syllable contacts: not more than two consonants can cluster at a syllable boundary.

4.4.2. Another rule, the reasons for which will appear more clearly below (4.4.4.), is that a sonant cannot precede or follow a cluster of two non-sonorant consonants; that

88. Insofar as these New Stage languages allow reconstruction of the situation which must have obtained here at the Ancient and Middle Stages.

89. It seems that a ŞC-Anlaut was still possible in PAA, cf. Chapter 1, under *ŋf, *ṛĉ, etc.

is, sequences of the types *CSC|CV, *CSC|CVC, *CSC|CSC, *CVC|CSS, *CVC|CSC are forbidden.

4.4.3. As I have attempted to show elsewhere (*SHL*, pp. 57 sqq., *JaDPA*, pp. 194 sq., 213.), a PS noun could exist either in a zero case (the zero, or absolute case was used when the noun had no syntactical connections, or when it was a predicate,[90] and at some very early stage, apparently also when the noun was the subject of a state[91]); or it could exist with a vocalic external inflection *-ə* (see n. 91 (3)). Having postulated that at the PAA diachronic level the vowels *i* and *u* coincided in a proto-phoneme **ə*, we must assume that at this stage there was no differentiation between the locative-ergative morph (Semitic nominative in *-u*, Cushitic nominative or ergative mostly in *-i*), and the relative morph (Semitic genitive in *-i*, genitive-accusative plural *-i:-*, the *nisbah* in *-i:-*, *-a:i-* < **-i̯*, Cushitic *-u*, *-i*, or secondary formations; relative morph *-i:*, *-ya* etc.). This is corroborated by the fact that in Egyptian we encounter a possessive construction of the transitive sentences (which is a variant of the ergative construction with the sole difference in that the ergative case of the subject of action coincides formally with the genitive. On this, see also Diakonoff *SHL*, p. 18(14); 85; *JaDPA* p. 246 sqq.,

90. This was the case in Akkadian (before the loss of the vocalic inflections), in Eblaite, and in Amorite. In all three languages the zero case freely alternated with *-a* but not with *-i* or *-u*. The same was probably the situation in Old Egyptian. It has not survived in Arabic. A noun as the predicate was used in the same way as the stative which was the zero case of the stative participle = verbal adjective. The descendant of the stative in Semitic, the "New Perfective", still had (and has) the zero ending (thus in Hebrew, as can be seen from the development of the vocalism: *qaṭal* < **qă̊:ṭal; *qaṭala* would yield **qă̊ṭăl*), or the ending *-a* (Arabic *qatala*).

91. The conclusion that PAA had formal means to contrast the categories "state" and "action" in nouns, pronouns, and verbs may be deduced from the observation that the personal affixes of the verbal form expressing state or quality have developed from the direct case of the personal pronouns, while the actor affixes in the verbal forms expressing action cannot be related to such pronouns. (The form expressing state or quality is, in Akkadian, the stative, of which the "New Perfect" of the other Semitic languages is a later development; in Egyptian, the qualitative-stative, also called "pseudo-participle"; in Sidamo, the relative; in Kabyle, Siwa and a number of other Berber dialects, the qualitative; in Chadic Mubi, the II[nd] Preterite). The most ancient AA languages have the following typical features in common with languages characterized by the ergative construction of the sentence: (1) the existence of formal contrast between the categories "action : state" and the absence of formal contrast between the categories "active : passive". (The so-called AA passive is always of secondary origin and expresses the impersonal viewpoint, not necessarily being in contrast with the active voice. It is not the expression of the point of view of the logical object of action as opposed to the point of view of its logical subject); (2) the possibility of existence in transitive verbal forms not only of a personal affix expressing the actor, but also of personal affixes expressing the object (i.e., the subject of the resulting state); (3) the Semitic distinction between the *-i-* morpheme for the genitive and the *-u-*morpheme for the actor, or subject case does not obtain, e.g. in Eastern Cushitic, where more often *-i* is the morpheme of the subject relative case which is the origin both of the Semitic genitive in *-i*, and the relative adjective, or *nisbah* in *-iy(a)-* < NAA **-əy(a)*, **-a:y(a)* < PAA **-i̯*; (4) there exist indications that the object case (accusative) originally coincided with the zero case *-Ø/-a* (in the noun, v. *SHL* p. 58), or the direct case (in the pronouns. Here it is usually called nominative. However, the pronouns of this form are not used to express the subject of an action as such, but only for intonational emphasis which to a certain degree breaks its syntactical ties: *ʔana:ku ʔama:tma* 'I, myself, I shall die': *ʔu šu: ʔimqutu xattu* 'and he, a fright befell him'; cf. *SHL*, pp. 70-73, 86). In languages with an ergative construction of the sentence the object of the action (here better termed the subject of the state resulting from the action) is expressed in the same way as the subject of a state in general. While in Semitic the connection betwen the direct case of the pronoun and the subject of action is rather loose, in Egyptian the corresponding form of pronoun is not used for the subject of action at all.

248(150). There are also other indirect indications of the absence of differentiation between *i* and *u* in Egyptian at an early stage.[92] But be it as it may, we must certainly assume the existence of both the zero inflection and the vocalic inflection in PAA.

4.4.4. This furnishes a sensible explanation for the following. If we postulate the existence of a zero and of a vocalic inflection, then, since the root morpheme could only exist inside a real noun, its structure must have been such as to make both a zero inflection and a vocalic inflection possible. From the first condition it follows that any root morpheme must either consist of a full syllable, or end in a full syllable; from the second condition it follows that the structure of a monosyllabic root morpheme (or of the second syllable in a bisyllabic root morpheme) must make a vocalic inflection possible without violating the rules of syllabic contact, i.e. the adding of a vowel must result in two permitted syllables, namely in CV|C+V (or its equivalents: CS|C+V, SS|C+V, SV|S+V, SV|C+V, CS|S+V, SS|S+V). A root-morpheme of the type $*C_1VC_2C_3$ is not allowed, because although it does not contradict the rules of syllable contacts in the case of a vocalic inflection ($*C_1VC_2|C_3+V$), it does contradict the rules of syllable contacts in the case of zero inflection.[93] Neither is a root-morpheme of the type *CV allowed, because according to the rules of syllable formation and syllable contacts, a sequence *CV+V is not permitted (1) inside one syllable, since a cluster of two vowels is forbidden; and (2) astride a syllable boundary, because no syllable can begin with a vowel. These rules, deduced from the supposition that a zero and a vocalic inflection did exist in PAA, and supported by Semitic and Cushitic attestations of the earlier inflectional systems, conform to the attested root corpus.

However, an analysis of the existing root morphemes shows, that a root morpheme of the pattern CS was possible, apparently because in this case the syllable boundary would pass through the sonant, owing to its double (vocalic and consonantal) nature

92. See under **k*, **k*^{w}, **g*, **g*^{w} in Chapter 1. Note that if at a pre-Egyptian stage *i* and *u* coincided, and since the subject of the action (actor) was there expressed in the possessive form, i.e. probably actually by an *-i*-ending (less probably *-u*), the question arises, why did not the well-known Egyptian change from **gi-*, **ki-* > *ǯi-*, *či-* obtain in word-bases ending in *-k*, *-g* when in the actor case? The answer, apparently, is that the case-inflection was affixed not to the word-base but to the gender or class-markers *-ụ*, *-t*

93. This means that all Semitic nouns of the pattern $C_1VC_2C_3$, if C_2 or C_3 is not a sonant, must be classified as secondary formations (i.e., as derived from verbal roots), and originating at a diachronic level later than the one at which the rules stated above obtained. The same is valid in reference to nouns of the pattern C_1i/uSC_2, because in this combination S would, according to the same rules, be equivalent either to a vowel, being in contact with a consonant, or to a consonant, being in contact with a vowel. But this means that the sequence C_1i/uSC_2 cannot represent a primary nominal root morpheme. It does not constitute either one full syllable or two full syllables of a permitted type. A zero inflection cannot obtain with such a pattern of root morpheme.

However, in the course of further development of deverbal word forms, such formations as C_1i/uSC_2 and even C_1i/uC_2C_3 did arise – secondarily. It is our guess that it was precisely here that the zero inflection perforce had to acquire its allomorph *-a*. Cf. in Hebrew **sipr-* 'book' etc. > *se:p̄ār*, but in neighbouring Phoenician **Gubl* < **g*^{w}*ibl* 'boundary rock', a city name, > Hebrew *Gəbal*, Phoen. *Gubla* (thus in the 3rd-2nd millennia and probably later); Greek Βύβλος < Mycenæan **G*^{w}*ublos*.

CS
*S+V, e.g. *dm̥-* 'blood' > *dam-|#*
da|m-u.

The sequence CS# was thus not completely identical with the sequence CV#; the sonant had in this case a double function, both as a vowel and as a consonant. This helps make it clearer why, although a syllable of the pattern |CSC| (or its equivalent) is permitted (also as a root morpheme), a bisyllabic root morpheme of the pattern *CSC+CVC, *CVC+CSC, *CVC+CS and its equivalents are impossible, being inconsistent with the rule forbidding the clustering of more than two consonants at syllable boundary.

4.4.5. To sum up, a monosyllabic primary root morpheme can include: (1) two phonemes, the first being either a non-sonorant consonant or a sonant, the second necessarily a sonant; or (2) three phonemes, the first and third of them being either a nonsonorant consonant or a sonant, and the second – either a vowel or a sonant:

(1) CS (or with S for C)
(2) C_1VC_2 (or C_1SC_2 or, in both cases, with S for C_1 and/or for C_2).

A root morpheme may also be bisyllabic. In this case both its syllables must conform ot the same rules and also to the rules of syllable contacts, i.e. a sonant must not precede or follow two consonants contacting over a syllable boundary. In other words, if the first syllable ends in a vowel or in a syllabic sonant, then the next syllable may be either of the type CS or of the type CVC; but if the first syllable ends in a consonant or in a non-syllabic sonant, then in neither of the syllables can the vowel be replaced by a sonant. Thus, the only possible patterns are:

(3) CVCS (and CSCS),
because CV|CS and CVC|S+V, CS|CS and CS|CS|+V are not forbid den sequences;
(4) CVCVS (and CSCVC),
because CV|CVC and CV|CV|C+V, CS|CVC and CS|CV|C+V are not forbidden sequences;
(5) CVCCVC,
because CVC|CVC and CVC|CV|C+V are not forbidden sequences.

However, the pattern *CVCV is impossible, because the sequence *CV|CV+V is forbidden; also CVCCS is impossible, because even if we write *CVC|CS|S+V, the sequence is forbidden, because the sonant S in its role of consonant follows the cluster -CC-; for the same reason, forbidden are also the sequences *CVC|CSC, *CSC|CVC, *CVC|CSS, *SSC|CSC, *CSS|CSC, *CSS|CSS etc.

These five permitted types of nominal root morphemes have their equivalent patterns: in the types (2), (3) and (4), V_1 can be replaced by S, and in all five types any C may be replaced by S.

4.4.6. There is one more type of primary nominal root morpheme, which can be considered to be an allomorph of the type (2). Namely, with the addition of a vocal inflection the last consonant in the CVC pattern is doubled: *C_1VC_2+V = $C_1VC_2|C_2V$. Of course, this phenomenon cannot be observed if the vowel of the root morpheme is a syllabic sonant, in accordance with the rule forbidding contact between a sonant and a

cluster of consonants at syllable boundary (the sequence *CSC|CV is impossible). For the sake of simplicity, we will denote the type $C_1VC_2(C_2)$ as type (2a) CVC:.

Historically, the patterns PAA *CS̩ > *CaS*, but PAA *CVS, including PAA *CaS > CVS: including *CaS:*. In the case of sonants, there are three possibilities of forming a monosyllabic root, *CS̩, *CaS, *CəS > *CaS, CaS:, Ci/uS*. But very few C_1VC_2-roots are preserved at the PS-level.

The word-base of the primary nouns in the historically attested Semitic languages can also include word-formative suffix morphs:

-a:m-, -a:n-, the so-called "individualizing" suffix; also ***-n-***;
-(a)b-,[94] suffix of a class of nouns denoting harmful animals;
-(a)r-,[94] var. ***-a:r-***, suffix of a class of nouns denoting domestic animals used in production;
-(a)l-,[94] var. ***-a:l-***, suffix of a class of nouns denoting wild animals used in production;

Also the possessive suffix *-y/i̯-* (*nisbah*), the feminine gender suffix *-t-*, and possibly, a few more. In analyzing the structure of the primary nominal root morpheme these morphs must not be regarded as part of the root.

In non-Semitic AA languages also other word-formative suffixes did exist. A marker *-u̯-* for the class of kinship terms can apparently be reconstructed for PAA and, as a relic, for PS.

4.5. Arguments for the rules. We will now proceed to state the arguments in favor of the rules indicated above, and at the same time attempt to find out the resons for certain seeming anomalies in the formation of Semitic primary nominal roots.

First of all, we will dwell upon the phonetic rules stated above in 4.3.1. IIIa-b as specifically characteristic of the subsystem of primary root morphemes.

4.5.1. The absence of vowel length. Among our examples (which, as already mentioned, are non-derivative Semitic nouns, mainly selected from nouns attested in four groups of the Semitic family of the AA phylum of languages, with the aim of securing the representation of at least the PS level of the vocabulary) only the following samples with long vowels were observed:

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94. In postulating these suffixes we follow the observations of the late N. V. Jušmánov (unpublished; cf. *JaDPA*, p. 4, 210). The relation between the forms *-ab-*, *-ar-*, *-al-* and *-b-*, *-r-*, *-l-*, lies on the same plane as the relation between the forms *-at-* and *-t-* in the feminine gender (originally yet another class of nouns), i.e., they must at a certain period have been in free variation. Cf. Arab. *san-at-* 'year', Akkad. *šatt-* < **san-t-* 'year. The variants *-a:l-*, *-a:r-* also have their analogies in the so-called feminine gender nouns: *kall-at- // kall-a:t-* 'bridge, daughter-in-law', *ʔax-a:t-* 'sister'. Cf. the following examples: (1) harmful animals Sem. *ʔam-ab-* 'hare', *ʕaqr-ab-* 'scorpion', **čaʕl-ab-* 'fox'; *dub-b-* 'bear', **ǯiʔ-b-* 'wolf', **zub-b-* 'fly', *kal-b-* 'dog' (originally a wild one); Eg. *db* 'hippopotamus', *yʔ-b* (< Cush. **ʔar-b-*) 'elephant', *zʔ-b* 'wolf, jackal', etc. In Chadic, and possibly in Cushitic, the harmful animals more often have *-m/-w* (and *m-*) as a class marker; (2) useful domestic animals: Sem. *ʔimm-ar-* 'ram', *ʕay-r-* 'ass-foal', **čų-r-* > *θawr-* 'ox' (also 'bull' etc.), **ḫam-ar-* 'ass', **kir-r-* 'lamb' (Hebrew *kar* has secondary vocalism), *lax-r-* 'sheep' (the forms *rax-l-*, *raxi-l-* are due to metathesis); Eg. *ʕ?* 'ass' etc.; (3) useful wild animals: Sem. *ʔayy-al-* 'deer', *ʕig-l-* 'calf', **gam:-(a)l-*, **gam-al-* 'camel', *nayy-al-* 'a kind of antelope', etc.; (4) class in *-n:* Sem. *ʔuð-n-* 'ear', PAA **Hʷəǯ-* 'to hear'; *baṯ-n-* 'womb' < PAA **baṯ* 'gourd; stomach'; *ṣaʔ-n-* 'goats and sheep', etc.; (5) class in *-t*, including in a rather general way all kinds of nouns denoting socially passive objects and phenomena. This evolved later to a new feminine gender.

ba:b- 'door'. This word is absent from the other AA languages; it should be considered as a contraction of **ba?-ba?-*,[95] analogous to **kab-kab-* 'star' > Akk. *kakkab-*, Amor. *kabkab-*, Hebr. *kôkå:b*, Mehri *kebki:b*, Eth. *ko:kab*, Arab. *kawkab-*; cf. **lay-lay-* 'night, evening' > Akk. *li:l-* (< **layl-*), Hebr. *layl-å* (with the old locative form in *-a:h* from **-aš*!), Aram. *le:ly-å* (< **laylay-(h)a:*), Eth. *le:li:t*, Arab. *layl-at-; *day-day-* 'teat, woman's breast' > Akk. *di:d-* (< **dayd-*), Herb *dad* (**dadd-* < **dayd-*?); Arab. *dayd-* (also *di:d-*). In all the quoted instances a tendency towards contraction of the form is observed; this is also generally typical of reduplications in Semitic.[96] It should be noted, that in some instances the nouns of this group can be connected with very ancient verbal roots, cf., e.g., **ba:?/*bu:?* 'to come, to enter', attested, besides Semitic, also in Egyptian *bw* 'place', in Omotic **ba:* 'to go', **(b)wa:* 'to enter', in Chadic *ba(i)* 'to go, to walk'; cf. perhaps also Sem. **la:?/i* 'to be weak, tired' (?).

da:m- 'blood' is attested only once as a dialectal (?) form in Akkadian, alongside of the much more usual *dam-*; all other Semitic languages have *dam-*, or at least reflect this form. But there was a PAA proto-form **dam* along with **dm̥*, as follows from Berber *i-dəmm-ən*.

There are also other instances of an alternation *a ~ a:* in the same root in different Semitic languages: 'water' is in Akk. *m*, *ma:mu:*, Hebr. *mayim*, Aram. *mayyå*, Eth. *ma:i*, Arab. *ma:?-*. Despite of the long *a:* also in some other AA languages (e.g., Berber *a-ma-n*, pl. of **ma:-*?), the vowel length is here hardly original. The same applies also to the word 'sheep or goat': Akk. *š, šu?u* (< **ĉa?-*?), Hebr. *śä*, *śe:-* (< **ĉay-*), Arab. *ša:?-*. Such vacillations in vocalism may help to explain also the anomaly of vowel length in the words *ki:s-* 'purse' and *θu:m-* 'garlic'. They should be regarded as the result of rhythmical *Analogiebildung* after the more usual C*a*SC- and CVCS-patterns. Perhaps also Akk. *ka:s-*, Hebr. *kôs* 'bowl' belongs here; cf., however, Arab. *ka?s* which may be the original form.[97]

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95. It can hardly be a rhythmic lengthening of **bab-* (cf. n. 81 above on **ma?/y* > *ma:?/y-* etc.), because there are no other instances of nominal roots of the pattern C_1aC_1. A prototype of the pattern **bHb* would normally result in **ba?b-*, which we also should derive from **b?-b?*, like *l̥i-l̥i* below. But a free variation of patterns *Ca?C ~ Ca:C is to be expected and is actually attested, see n. 97 on **ka?s-*.

All Semitic roots of the pattern $C_1C_2C_1$ are derived from $*C_1C_2\text{-}C_1C_2$, cf. n. 82.

96. Cf. the predominance of incomplete reduplications in the Semitic stirpes ("stem-modifications") of the D-type (Akk. D, R, Arab. II, IX, XV, etc.) as compared to the abundance of completely or almost completely reduplicated forms in the corresponding stirpes in other Afrasian languages (in Berber, in many Cushitic languages, not uncommonly in Chadic and Egyptian, cf. *SHL*, pp. 100-101). However, among nominal reduplications, CVCCVC-types are quite common both in Egyptian and in Arabic (mostly for less frequent objects), and contrariwise, the verbal $C_1\text{-}C_2\text{-}C_1$-type, derived from $*C_1VC_2\text{-}C_1VC_2$, is often enough encountered in Egyptian as well as in Semitic.

97. Cf. Edzard in his review of *SHL* (RA 61 [1967], p. 149) suggested that *ka?s-* (**ka?c-*) is a secondary formation. I cannot see any reason for an "Analogiebildung" in the absence of semantic connections (with *ra?s-* 'head', as suggested), but a development of this kind may have taken place as part of a general tendency towards rhythmic assimilation of the pattern CVC to the more freqent patterns CVSC or CSC > C*a*SC. On the other hand, there is no reason why a **kH̥s* > *ka?s-* could not have been original. The difference between Hebrew *kôs* (spelled *kws*) and Hebrew *rôš* spelled *r?š*) might have been purely orthographic.

Similar rhythmical reasons may be responsible for the variant *ʔila:h-* 'god', parallel to *ʔil-*, but more probably it is a diminutive of affection, cf. also **ʔina:s-* 'man', Hebr. *ʔᵉno:š*, Aram. *ʔᵃna:š-ā*, Arab. *ʔuna:s-*, *ʔins-a:n-*', Sab. *ʔns*; Akk. *niš-* 'people'.[98]

At all events, primary nouns with a long vowel in the root are extremely rare, and their vowel length is apparently in all cases of secondary origin.

4.5.2. Secondary differentiation of *i : u* in non-derivative nominal roots. In the material under review there are nearly no cases where the *u*-vowel can be attested in the noun in question in all of the Semitic language groups, and does not alternate with the vowel at least in some of them. It is common knowledge that even in verbal nouns, belonging to a much later diachronic level, noun patterns with *i* and with *u*, or with *i:* and with *u:* frequently alternate without essential change in the semantics of the pattern.

In the sphere of primary nominal roots, in all examples which we have collected, the vowel *u* (nearly always in alternation with *i*) is attested only in the following sequences: (a) after *b, p, m,* (b) after *g, q, k* (apparently from PAA **gʷ*, **ḳʷ*, **kʷ*, (c) before *b, p, m,* (d) in a few cases after *ʔ*, only in roots of the patterns HVCS (and possibly HŞC).[99] This last group (d) will be treated below in another connection. As to the groups (a), (b) and (c), at first it seems that the distribution of labialized and non-labialized forms among the different Semitic languages is haphazard. It can, however, be surmised that this impression is due to the scarcity of examples which can be used for its control,[100] and also to our inadequate knowledge of the real history of the Semitic languages and cultures at the prehistoric level. Still, the labialized and non-labialized forms can be predicted, not with a hundred percent certainty, but at any rate with a high degree of probability:

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98. The AA root is **nəš*. The pattern **CəC-* shows a tendency to further contraction in *Allegro-Aussprache*: Arab. *bin-* 'son' > *(i)bn-*, **niš-* 'people, mankind' > **(i)nš-*, from whence also Hebrew *ʔi:š-*, Arab. *ʔins-* with *ʔins-a:n-* as nomen unitatis, and **ʔi/una:s-*, Hebrew *ʔᵉno:š*, Arab. *ʔina:s-* as a diminutive. Cf. the irregularities in the word **sət* 'behind': Hebr. *še:t* (< **šit-*), but Pl. *šå:t-o:t*; Arab. *(i)st-*, but the forms *sat-* and *sut-* are also attested in certain combinations. (These forms are, of course, like the form *(i)st-*, just so many cases of emergence of a "Hilfsvokal", and they are all to be explained by the extreme contraction of the word-base which is so typical of this root pattern). Note the so-called "Belova law": Egyptian roots of the wC_1C_2-, yC_1C_2-type usually correspond to Semitic $C_1u{:}C_2$, $C_1i{:}C_2$ roots. In both cases the AA prototype is $C_1əC_2$ > $C_1/ɣC_2$. This case should not be confused with the development of AA ŞC, cf. **r̥ĉ* > Akk. *ʔerṣ-et-*, Hebrew *ʔäräṣ*, Arab. *ʔarḍ-* 'earth'; **n̥f* > Akk. *ʔapp-*, Arab. *ʔanf-* 'nose'. This group of roots may have SəC-variants, as **n̥s*, **məs* 'evening': Akk. *muš-* 'night', Hebrew *ʔāmāš*, Arab. *ʔams-* 'yesternight; evening', Berber *əms* 'to overnight', etc.

99. Nouns with an *u*-vocalism but not belonging to the above categories are either derived from verbs, or are of non-Semitic origin. This may not be the case for *kulb-ab-* 'ant', attested only in Akkadian, with the ancient Semitic suffix *-ab-* (< **kʷ*lb-ab-). There are a few primary nouns where *u* alternates with *a* – **CʷŞ* > *CuS-* and *CaS*. Moreover, velar and phayngeal fricatives seem to have had labialized variants.

100. Which makes it impossible to take into account the influence of the positional surroundings of the phoneme with sufficient precision and with adequate differentiation of possible influences.

(1) Sequence ***bə-, *g^{w}ə-, *k^{w}ə-:***

Akkadian *bukr-* 'first-born son' (< **bək$^{(w)}$r-*);[101] *bin-*, also *bun-* 'son' (isolated examples, mostly from lexicological texts, probably a borrowing);[102] *bu:r-* well' (< **buʔr-*), less frequently *be:r* (< **biʔr-*; borrowing?); *gulgul-t* 'skull'; *qutr-* 'smoke'; *šu(b)bul-t* 'ear of corn'.

Hebrew *bəkɔ:r* 'firstling, first-born' (< **buk(u)r-*);[103] *be:n* 'son' (< **bin-*); *bɔ:r* 'well, pit' (< **bu:r* < **buʔr-*) but also *bəʔe:r* 'well' (< **biʔ(i)r-*); *gulgɔ:l-āt* 'skull' (< **gulgul-t-*); *qəṭɔ:r-āt* 'incense' (< **quṭur-t-*, fem. of **quṭr-* or **quṭ(u)r-*); *šibbɔ:l-āt* 'ear of corn, twig' (< **šin-bul-t-*). The discord of forms is obviously to be explained by the fact that the Hebrew language was formed by the superimposition of an Amorite-Sutian nomadic *a:-* dialect (or dialects) over a strong related substratum of the local *o:/u:-* language of the settled Canaanites.[104] The characteristic, but no doubt comparatively late feature of the development of the CV_1CS-patterns into CV_1CV_1S-patterns should be noted. It can be compared with the Akkadian phenomenon of retaining the CVCV*r-* pattern while the CVCVC/S pattern is as a rule contracted to CVCC/S (von Soden (1952), §§ 12b, 55d, 6a etc.

Aramaic *bukr-å* 'first-born'; *be:r-å* 'well', *golgu:l(ə)-t-a* 'skull'; *qiṭr-å*;[105] 'smoke'; 'ear of corn'. The non-labialized forms predominate but labialized forms also occur (in contact with **k^{w}*, **g^{w}ʔ*. Most probably, this phenomenon reflects the historically attested mixed ethnic origin of the Arameans. Many words may appear to be borrowings from Akkadian: the number of proved Akkadisms in Aramaic is very considerable. Note also that the calculations of the glottochronological point of the losing of contact between Aramaic and Arabic lead to absurd results. There never was a loss of contact, so that the rules that apply are not glottochronological and genealogical, but linguo-geographical.

Ethiopic: both *i* and *u* are reflected in Ethiopic as *ə*, hence Ethiopic examples rarely informative;

Arabic: *bikr-* 'first-born', *(i)bn-* (on this and similar contractions, see also n. 98), *bin-* 'son', *biʔr-* 'well'; *ǯalaǯ-at-* 'skull',[106] *qitr* 'incense', *sunbul-at-* 'ear of corn' (a borrowing from some dialect of the ancient settled population?).

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101. That the second consonant might have been **k^{w}* is made probable by Eth. *bak^{w}ər* (although this form is a result of a late Southern Semitic change in vocalism, and does not directly continue the Proto-Semitic **bək$^{(w)}$r-*. But even if we derive the Ethiopic form from **bakur-*, the existence of the sequence *ku* may in this particular case point to a **k^{w}* in a still earlier prototype.

102. CAD s.v. Cf. *bun-* in Amorite and probably in Ugaritic (as in *bunnuš* 'man' < *bən-nəš* 'son of man'?), alongside of *bin-*.

103. On the formation of Hebrew patterns of the type *bəkɔ:r* < **bukur* < **bukr-*, *bəʔe:r* < **biʔir* < **biʔr-*, *rəʔe:m* < **riʔim* < **riʔm-* alongside of patterns like *ʔɔ:zān* > **ʔuðn-*, *ʃe:gāl* > **ʃigl-* etc. formed according to rule, see also n. 127 and 4.8.1.

104. Similar discordant forms are found also in other Hebrew word-patterns, cf. *gannå:b* 'thief' < **ganna:b-*, but *gibbɔ:r* 'strong man' < **gabba:r-*. At a somewhat earlier stage both sets of phenomena are characteristic, on the one hand, of Amorite dialects, and on the other, of Canaanite (Amor *bun-* 'son', *Daga:n* 'the god Dagon', *šimʔa:l-* ~ *šamʔa:l-* 'left side; north'; Can. *bin-* 'son', *rɔ:š-* or even *ru:š-?* 'head' (< **ra:š-* < **raʔš-*).

105. The Aramaic examples are taken from different dialects, hence a certain degree of inconsistency in the forms quoted. The forms with *e* < *i* are mostly from Syriac. Anyway, *e* and *i* are but allophones in Aramaic (thus *qeṭr-å*).

106. In connection with this form it might be asked what is the prototype, **g^{w}l̥-g^{w}l̥-* or **g^{w}əl-g^{w}əl?* It is to be supposed that the prototype of the Northern Semitic forms is **g^{w}əl-g^{w}əl*, because the similar root **g^{w}r̥-* 'throat' (where **g^{w}* is postulated in the supposition of the affinity of this root with the verbal root **g^{w}r'* 'to swallow', cf. Eth. *g^{w}ərʔ-e:* 'throat') results in Hebr. *gar-gar-āt* Aram. *gar-gar-tå*, *gaggar-t-å*. As to the Arabic form (with a partial contraction of the reduplication), it may possibly continue a variant prototype **g^{w}l̥-*. It is not impossible that in Akkadian the sequence **g^{w}*S-, **k^{w}*S- resulted not in *ga*S-, **ka*S- as could be expected, but in **gu*S, **ku*S. Besides the already cited example of *kulb-ab-* 'ant' we may perhaps also refer to *gangur-i:-t-* (an adjectival formation?) 'throat or stomach of animal (?)', where **-g^{w}r̥-* in the second syllable > **-g^{w}ar-* > *-gur-*, but in the first syllable this process was prevented by the dissimilation *-r̥g-* > *-r̥g-*?

(2) Sequence ***k*ʷə**

Akkadian *kull-at-*; Hebr. *ko:l* (< **kull-*);, Aram. *kull-*; Eth. *kʷəll*; Arab. *kul-* 'totality, all'.

(3) Sequence ***mə-***:

Akkadian *mut-* 'man, husband'; Hebr. Plur. *məti:m* (which could be from **mut-i:ma* or even from **mat-i:ma*, but cf. Amor., Can. *mut-* and Hebr. *me:tim* Job 24:12 (< **mit-i:ma*?).[107]

Note however, that in verbal nouns *mi*-C|C... is always from **ma*-C|C... The prefix *mu-* never alternates with **mi-*. It seems that the change **mə-* > *mu* was Common Semitic in unstressed syllables.

(4) Sequence ***-əb-***:

Akkadian *kibr-* 'bank of river', *libb-* 'heart'; *dub-b-* 'bear' (borrowed?);[108]

Hebrew *le:b* 'heart' (< **libb-; le:bāb-* < **li/uba:b-* is probably a diminutive); *do:b* 'bear' (< **dub-b-*); cf. the commentary to the Hebrew examples for the sequence **bə-*, **gʷə-*, **ḳʷə-*.

Aramaic *libb-ā*, *lebb-ā* (< **libab-(h)a:?); debb-ā* 'bear'.

Arabic *lubb-* 'heart', *dubb-* 'bear'.

(5) Sequence ***-əp-***:

Akkadian *ṣupr-* 'fingernail, claw'; Aramaic *ṭiṗr-ā*; Arabic *ḍufr-* (also *ḍifr-*).

(6) Sequence ***-əm-***:

Akkadian *ʔumm-* 'mother', *ʔim-t-* 'saliva; poison';[109] *šum-* 'name'; cf. *šum-ma:* 'if (< **šim/n+ma:*);

Hebrew *ʔe:m* 'mother' (< **ʔimm-*), *ḥe:m-ā* 'poison' (< **ḥim-at-*), *še:m* 'name' (< **šim-*); cf. *ʔim* 'if' < **šim*;[110]

Aram. *ʔimm-ā* 'mother', *ḥem-t-ā* poison', *šem*, also *šum*, *šəm-ā* 'name' (< **ši/um-(h)a:*), cf. *he:n*, *ʔin* 'if' (< **šin*).

Arab. *ʔumm-* 'mother', *ḥum-at-* 'poison' *(i)sm-* 'name';[111] cf. *ʔin* 'if'.[111]

Thus (apart form some inconsistencies, probably to be explained by interdialectal borrowings or by some special conditions of phonetic surroundings which cannot be identified because of the scarcity of examples), there are certain rules of distribution of the reflexes of **ə* in contact with labials and labialized consonants:

bə-, *gʷə-, *ḳʷə-	Akk. *bu-*, *gu-*, *qu-*; Hebr. *bu-*, *gu-*, *qu-* (but with considerable influence of an *i*-dialect; Aram. inconsistent (?); Arab. certainly *bi-*.
ḳʷə, *mə-	probably *ku-*, *mu-* in all languages (Eth. *kʷə-*).
-əb-	Akk. *-ib-*, Hebr. *-ib-*, Aram. *-ib-*, Arab. *-ub-*.
-əp-	Akk. *-up-*, Hebr. *-ip-* (?),[112] Arab. *-uf-* (and *-if-*)

107. However, the form *me:ti:m* might be regarded as a Masoretic hypercorrection (< **məti:m*?).

108. There were no bears in Mesopotamia

109. An interdialectal borrowing or an example of an early case of free variation *i* ~ *u*? Eth. *ḥamo:t* 'gall' is apparently a later derivative formation.

110. A particle of pronominal origin, including the same phoneme which appears in the pronoun **-šu:* 'him' and in the causative morphs **ša-*, **-š-ta-* (Akkad. *-šu*, *-ša-*, *-š-ta-; Hebr. -hu:*, *ha-*; Aram. *-h*, *ha-*, *ʔa-*; Arab. *-hu:*, *ʔa-*, *-s-ta-*). The Auslaut of the particle (*-m* or *-n*) depends on the existence of mimation or of nunation in the language in question; so, naturally, there is no labialization of **ə* in this word in languages with nunation (Aramaic, Arabic).

111. On the contraction see also 4.8.4. and above n. 98.

112. I have not found any satisfactory example from Hebrew; but cf. 'nail, claw' *ṣip'po:rān*, a secondary formation not yielding itself to easy interpretation (< **ṣippur-n-*). However, it includes the sequence *-ip-*, although we do not know its relative age in this particular word. Cf. also *qippo:ḏ* 'hedgehog'. Both forms, however, could also be derived from **ṣəp'po:rān*, **qəp'po:ḏ* < **ṣup'pur-n*, **qup'puḏ-*. The Akk. Sg. *ṣupr-*, pl. *ṣupparu:* is a rare but normal case of *Pluralis fractus*.

*-ə*m*- Akk. -*um*-, Hebr. -*im*-, Aram. -*im*-, Arab. -*um*-

The number of examples is not sufficient, but even those available prove clearly the allophonic character of *u* in the subsystem of primary nominal root morphemes.

4.6. Root vowels. Let us now turn to the postulated specific character of the *a*-vowel in bisylalbic roots and word-bases. Here we shall analyse the ancient bases with the word-formative suffixes *-a:l-*, *-a:m-*, *-a:n-*, *-a:r-*, as well as the primary roots of the patterns CV|CVC- and CV|CS- (CV|CV|C+V and CVC|S+V!). We must note that the specific phonotactic conditions reigning in Akkadian and Aramaic do not always allow of distinguishing between the patterns CVCVC and CVCC, and sometimes it is also dificult to decide, whether the original semantics of the root is verbal or nominal. Naturally, if in a $C_1VC_2C_3$ pattern neither C_2 or C_3 is a sonant, or if the sequence $-VC_2-$ is = -əS-, then there should be no doubt as to the verbal origin of the noun in question.

4.6.1. *a*-coloring with laryngeals. First we must separate the group of root morphemes in which either C_1 or C_2 is one of the phonemes /ʕ/ or /ḥ/. These, as is well known, tend to give an *a*-coloring to the neighbouring vowel.[113] This group in cludes: *ḥə/abl-* 'rope' (Akk. *ʔebl-* < **ḥabl-*, Heb *ḥăḇăl*, Aram. *ḥabl-å*, Eth. *ḥabl*, Arab. *ḥabl-*); **ḥə/aql-* 'field' (Akk. *ʔeql-* < **ḥaql-*, Aram. *ḥaql-å* Eth. *ḥaql*, Arab. *ḥaql-*); **ṭaʕm,-* (Akk. *ṭe:m-* 'understanding'; 'decree', Hebr. *ṭáʕam* 'taste', Aram. *ṭaʕăm-å* 'decree', Eth. *ṭa:ʕm*,[114] Arab. *ṭaʕm-*);[115] **ləḫy/w-* 'chin, beard' (Akk. *lax*,[116] Hebr. *ləḥi:*, Arab. *laḥy-* 'jaw', all apparently from **laḥy-*, but cf. also Aram. Targ. *lo:ḥå* < **lauḥ-* < **laḥw-* (?), and also Arab. *liḥy-at-* 'beard' < **liḥy-*); **ʕə/aqɾ-b-* 'scorpion' (Akk. *ʔaqrab-*, Hebr. *ʕaqråḇ*, Eth. *ʕaqrab-*, Arab. *ʕaqrab-*, all apparently < **ʕaqr-(a)b-*, but cf. also Aram.: Syriac *ʕeqar(ə)ḇ-å*;[117] **čaʕl-ab-* 'fox' (Akk. *še:leb-*, Arab. *θaʕlab-*, but cf. Aram. *taʕᵃl-a* < **čaʕl-*; Hebr. *šuʕa:l* < **čuʕal-* is a diminutive). Vacillation is attested in the root of the word 'handful': Akk. *ʔupn-* (< **ḥupn-*; the form *xapn-* is a borrowing), Hebr. *ḥop̄än* < (**ḥupn*), Aram. *ḥup̄n-å*, Eth. *xəfn*, *ḥəfn*, but Arab. *ḥafn-at-*. Cf. also **ĉə/aʕɾ-å* 'hair' (Akk. *šar-t-* – not **še:rt-* – as one would expect,but this is not without parallels –, Hebr. *še:ʕår* < *šiʕ(a)r-*, Aram. *saʕr-å*, Eth. *ša:ʕr-* (< **šaʕr-*) 'grass', Arab. *šaʕr(-at)-*, *šaʕar(-at)-* 'hair', *šiʕr-at-* 'hair of the pudenda'.

Then, apparently, a group of roots beginning with the sequence *H* (> ʔ) + unstable vowel should be separated. The only reasonable explanation seems to lie in the assumption of a labialized laryngeal, a phenomenon sometimes suggested also for Proto-Indo-European.

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113. Therefore it is difficult to establish the original quality of the vowel. Thus, in the reconstructed form the notation *ə/a* is used. Only in 'handful' is the form to be reconstructed certainly **ḥəpn-*, and in 'chin' **ləḥi̯/u̯* is also possible.

114. From **ṭaʕm̥/*ṭʕ̥m-*.

115. This root (which is PAA) is also attested as a verbal root, but possibly the nominal meaning is the original one.

116. The irregularity of the form (**ḥ* should result in *ʔ* not in *x*) may mean that this is a borrowing.

117. The sequence -CS- at morpheme boundary (the suffix beginning with -C) seems to result either in -C*a*S + C- or (if there are favorable conditions as to the rules of syllabic contact), also in -*C*|*Sa*-|C-. Perhaps stress conditions could play a role.

Actually, it appears in a number of cases that not only the vowel vacillates, but also the "weak" sonant may vacillate between *ʔ-*, *w-* and *y-* (but not *h-*). The reconstruction of the hypothetic PAA *$*H̯^w$* in this case is supported by the appearance of *w-* in AA languages other than Semitic, and by the appearance of *$*b_2$* (a **b* influenced by a pharyngeal) in Berber. The vocalization points at the same time to a *u*-vowel where an *a*-vowel would else be expected, and by other similar phenomena. Examples:

PAA ***H̯^waǯ*** > Akk. *ʔuz-n-*; Hebrew *ʔo:z-än* Aram. *ʔud-n-*, *ʔid-n-*; Arab. *ʔuð-n-*; (Pre-)Old Egyptian *yd-n* 'ear'; Cushitic: Khamir *waǯ-* 'to hear'; Omotic: Moča *wa:žži ḳa:kko* 'ear-ring' etc.

PAA ***H̯^wəni̯*** > Akk. *ʔiny-*, *ʔuny-* 'utensil'; Hebrew *ʔo:ni:* (< *ʔuny-* 'vessel'; Arab. *ʔina:ʔ-* (diminutive!) 'vessel';[118]

PAA ***H̯^whl̯*** > Akk. *ʔa:l-* 'town, community'; Hebrew *ʔo:häl* (< *ʔuhl*); 'tent'; Aram.: Syriac *yahl-* (< **wahl-*) 'nomadic tribe, band'; Arab. *ʔahl-* 'clan, people' (*-a-* under the influence of *-h-*).

4.6.2. The other nominal root morphemes. After the exclusion of these groups of nominal root morphemes, all the other primary nominal root morphemes of the patterns CV|CVC- and CVC|S-, as well as the roots with the ancient word-formational morphs *-a:l-*, *-a:m-*, *-a:n-* and *-a:r-* may be subdivided into two more groups: (a) with a stable vowel in the first syllable, and (b) with an unstable vowel in the first syllable.

4.6.2.1. Stable vowel. Cases of vacillation between *u* and *i* are classified with the first group because *u* is regarded as an allophone. To this group belong:

**bəʔr-* 'well': Akk. *bu:r*, *be:r-;* Hebr. *bôr*, *bəʔe:r*; Aram. *be:r-å*; Eth. *bəʔr*; Arab. *biʔr-*;

**bək(^w)r-* 'first-born': Akk. *bukr-*; Hebr. *bəkoːr*; Aram. *bukr-å*; Arab. *bikr-;*

**dəbas-* 'treacle, honey': Akk. *dišp-* (< **dipš-* < **dib(a)s-*);[119] Hebr. *dəbaš* (< **dibas-*); Aram. *debš-å*, *dubš-å* (< **dibas-(h)a:*), Arab. *dibs-*;[119] **ʕənab-* 'fruit': Akk. *ʔinb-*[119] 'fruit'; Hebr. *ʕe:nå:b* (< *ʕinab-*); Aram. *ʕi/enb(ə)-t-å*; Arab. *ʕinab-* 'grapes';[119]

**ḳ^wəṭr-* 'smoke': Akk. *qutr-*[120] *'smoke'; Hebr. qəṭo:r-ät* 'incense'; Aram. *qiṭr-å*[50] 'smoke': Arab. *qitr-* 'incense';[121]

**rəHm̯-* 'wild ox': Akk. *ri:m-*, Hebr. *rəʔe:m* (< **riʔ(i)m-*); Aram. *re:m-å* (but Syriac also *ram-å*);[122] Arab. *riʔm-* ' oryx antelope';

**čəp̯-* 'finger-nail, claw': Akk. *ṣupr-*; Aram. *ṭi/epr-å*; Eth. *ṣəfr*; Arab. *ḍufr-* (and *ḍifr-*);

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118. Eth. *nəwa:i* probably from **wəna:i* is, if this reconstruction is correct, an ancient diminutive, like the Arabic form.

119. A case of contamination of the patterns CVCVC- and CVCC- mentioned in 4.8.2.

120. Dissimilation *ṭ* > *t* under the influence of *q* according to a general rule in Akkadian.

121. In Ethiopic and Arabic we find ancient diminutives (with dissimilation): Eth. *qəta:r-e:*, cf. Arab. *quta:r-* 'aloë-wood' (for incense), *quṭa:r-* 'mist, cloud'.

122. An anomalous form, but in any case connected with the influence of *ʔ* on the vocalism.

**təh-(a:m-)* 'sea, sea-side': Akk. *ti?a:m-t-*, *ta:m-t-*; Hebr. *təhôm* (< **tiha:m-*); Arab. *tiha:m-at-*;

**ḥəm-(a:r-)* 'ass': Akk. *ʔime:r-*, dial. *ʔema:r-* (< **ḥamaa:r-*?); Hebr. *ḥ[a]môr*; Aram. *ḥəmår-å*; Arab. *ḥima:r-*, all < **ḥima:r-*, possibly a diminutive of **ham-ar-*).

It will be noted that the stable vowel of the first syllable is, in the examples cited, **ə = i/u*.[123] However, in contact with **ʔ* also **a* may appear as a stable vowel: **ʔat-a:n-* 'she-ass'; Akk. *ʔata:n-*, Hebr. *ʔåtôn* (< **ʔata:n-*), Aram. *ʔ[a]tån-å*, Arab. *ʔata:n-*; **ʔačr̥* 'place': Akk. *ʔašr-* (< **ʔačar-*), Aram. *ʔatr-å*, Eth. *ʔasár*„ Arab. *ʔaθar-*.[124]

4.6.2.2. Unstable vowel. Examples:

**bar(-)aḳ-* 'lightning': Akk. *berq-* (< **biraq-ʔ*); Hebr. *baraq* (< **baraq-*), Aram. *barq-a*, Arab. *barq-*.[125]

**g[w]ar-(a:n-)*[126] *'throat': Akk. gira:n-*, Hebr. *gå:rôn* (< **gar-a:n-*), cf. the reduplicated form *gargär-ät* (< **gargar-t-*), Aram. Targ. (Hebraism) *gå:rôn-å*, Arab. *gira:n-*.

**ʒakar-* 'man, male': Akk. *zikar-*, Hebr. *zåkår* (< **ʒakar-*), Aram. *dikr-å*, Arab. *ðakar-*.

**ʒanab-* 'tail': Akk. *zibb-at-* (< **ʒinb-at-* < **ʒinab-at-*); Hebr. *zånåḇ*; Aram. *dunb-å* (< **dubb-å* < **dibb-å* < *ʒinab-(h)a:*); Eth. *zanab*; Arab. *ðanab-*.

ʒaqan-* 'beard': Akk. *ziqn-* (< *ʒiqan-*); Hebr. *zåqån* (<ʒaqan-*); Aram. *diqn-å*, *daqn-å*; Arab. *ðaq(a)n-*, *ðiqan-* 'chin'.[127]

**kanap-* 'wing': Akk. *kapp-* (< **kanp-* < **kanap-*); Hebr. *kå:nå:ṗ* (< *kanap-*); Aram. *kin(ə)ṗ-å* (< **kinap-*); Eth. *kənf*; Arab. *kanaf-*.

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123. A stable vowel is also attested in the word **ʃəg[w]-* (the suffix brings it also into this group as regards its syllabic structure). Cf. Hebr. *ʃe:gäl* (< **ʃigl-*) 'calf', Aram. **ʃegl-å* 'calf; antelope'; Arab. *ʃiǧl-*; in Ethiopic *ʃəg[w]i:l*, a secondary formation. The Akkadian *ʔaga:l-* 'an equine animal' has nothing to do with **ʃəg[w]-*.

124. As we shall see below, an original *a* in the first syllable should be unstable. This probably means that here the prototypes should be reconstructed as **ʔət-a:n-*, **ʔəčr̥-*, with **ə > a* under the influences of **ʔ*. Cf. 4.6.1.

125. The example is not altogether reliable. The Akk. *berq-* may be regarded as the result of a contamination of the types CVCVC and CVCC. In Aramaic we would expect **berq-å*, but irregular alternations of the patterns C*a*CC- and C*i*CC- in Aramaic are nothing out of the common owing to reasons stated below (4.8.1.); cf. under **baṯ-n̯-* below. However, also in Phoenician we encounter *Barka* (in Greek letters, apparently a feminine) instead of an expected **baraqa:*. It is possible that all the forms in question except perhaps Hebrew should be traced to the derivative verbal root **brq*, which could be an explanation why the word does not fit into the scheme of correlations for the pattern in question. Cf. also the derivative *nomen instr.* in Ethiopic: *mabráq*. The final *-ḳ* is a verbal root complement denoting instant action.

126. The root is here in the C_1VC_2 (C_2 = S) degree, not *C_1S, because in connection with the suffix a forbidden biconsonantal Anlaut would arise. At least, this must be the explanation of the form unless we decide that the suffixation is later than the process **g[w]r̥-* > *gar-*. Cf. the root variant *g[w]ər-* (or a secondary verbal root **gr*) in the Hebr. *ge:r-å* 'cud', and the root variant **g[w]r̥* in Hebr. *gargär-ät*, Aram. *gargar-t-å*, *gaggar-t-å* 'neck, throat'.

127. In Arabic the phenomenon, already mentioned in connection with Hebrew examples, of expansion of the pattern CVCC- (including < *CSC-, *CVCS-) > CVCVC- and, conversely, a contraction of the pattern CVCVC- > CVCC-, is common. However, the secondary form usually exists as a variant of the main form; hence the varians: *ðaqan-* ~ *ðaqn-*, *ʔuðn-* ~ *ʔuðun-*, *ḍufr-* ~ *ḍufur-* etc.

**las-(a:n-)* 'tongue': Akk. *liša:n-*; Hebr. *lå:šôn* (< **las-a:n-*); Aram. *lešš-ån-å*;[128] Eth. *ləsa:n*; Arab. *lisa:n-*.

**baṭ-n̥-* 'womb': Hebr. *bäṭän* (< **baṭn-*); Aram. *bi/eṭn-å*; Arab. *baṭn-*.

**nasr̥-* 'vulture': Akk. *našr-*; Hebr. *näšär* (< *nasr-*); Aram. *nešr-å* (< **nisr-*); Eth. *nəsr*; Arab. *nasr-*.

**ragl̥-* 'foot': Hebr *rägäl* (< **ragl-*); Aram. *regl-å*; Arab. *riǧl-*.

**sakar-* 'intoxicating drink': Akk. *šikar-*; Hebr. *še:kå:r* (< **sikar-*); Aram. *si/ekkr-å*, Eth. *səkːar*; Arab. *sakar-*.

The distribution of the vowels between the individual languages can be tabulated:

	Akkadian	Hebrew	Aramaic	Ethiopic	Arabic
**gʷar-(a:n)*	*i*	*a*	-	-	*i*
**las-(a:n)*	*i*	*a*	*i*	*i*	*i*
**ǯakar-*	*i*	*a*	*i*	-	*a*
**ǯanab-*	*i*	*a*	*i*	*a*	*a*
**ǯaqan-*	*i*	*a*	*i,a*	-	*a, i*
**kanap-*	*a*	*a*	*i*	*i*	*a*
**sakar-*	*i*	*i*	*i*	(*i*)	*a*
**(baraq)-*	(*i*?)	*a*	(*a*?)	-	(*a*?)
**baṭn̥-*	-	*a*	*i*	-	*a*
**nasr̥-*	*a*	*a*	*i*	*i*	*a*
**ragl̥-*	-	*a*	*i*	-	*i*

This table clearly shows that Akkadian, Aramaic and Ethiopic are typical "*i*-dialects" and Hebrew a typical "*a*-dialect". Sporadic forms: Akk. *kapp-*, *našr-*, Hebr. *še:kå:r*, Eth. *zanab* can be explained as results of interdialectal contacts, and Aram. *daqn-å* (and *barq-å*) also as a result of contamination of forms, since the indefinite form *dəqan*, *bəraq* may belong as well to **diqn-å*, **birq-å* as to **daqn-å*, *barq-å*. The picture in Arabic is more complicated. However, the rule seems to be that the first vowel is *i* if the second vowel is long, but *a* if the second vowel is short. Forms like *ðiqan-*, *riǧ l-* may be due to borrowing, perhaps from some South Arabian dialect.

4.6.2.3. Explanation. The situation stated is easiest explained in the supposition that the most ancient stress lay on the second syllable (including the syllable formed by the final sonant). In these conditions **ə* was preserved as *i* (or, in contact with a labial or labialized consonant, *u*), while **a* had a tendency towards reduction, which resulted, in the different dialects, either in *i* or in *a*.

For more on the relations of vowel and stress, see Chapter 5. This particular glance into the workings of vocalic phonetics in Semitic may be a pointer to what kind of phenomena may be expected to have occurred in the history of other AA languages.

4.7. Illustrations of the five main patterns. We can now give illustrations to the five main patterns of primary nominal root morphemes as formulated in 4.3. At the same time they will show the third of the main phonetic rules obtaining for the sub-system of

128. The gemination is here probably the result of a rhythmical assimilation of the pattern **CVC* to the pattern **CVCC*, *-a:n-* still being felt as a suffix not belonging to the root.

such morphemes: the double (syllabic and non-syllabic) quality of the sonants *ʔ, y, w, l, m, n, r.*

For considerations of space economy we will limit ourselves to reconstructed forms, citing the historically attested forms only in cases when they cannot be deduced from the prototypes with the help of such phonetic rules as are commonly known to Semitologists, or those formulated in Chapter 2 above as specially referring to the subsystem of primary root morphemes, and when additional factors have to be taken into account.

(1) Pattern CS: **ʕi̯-r-* 'ass-foal' (cf. Eg. ʕ? 'ass' (where ? < **-r*), **čᵘ̯-r-* 'bull, ox'; **dl̥-t-* 'door-fold'; **kl̥-b-* 'dog'; **čʕl̥-ab-* (? or *čaʕl̥-ab-?*) 'fox'; **sn̥-t-* 'year'; **bḪ-bḪ-* (> **ba:b-*) 'door'; **di̯-di̯-* 'teat, woman's breast' (> *dayd-, dadd-*); **gʷr̥-gʷr̥-t-* 'neck, throat'; **li̯-li̯* (> **layl*) 'night, evening'. On **r̥ĉ, *n̥f, *n̥s*, etc., see in the list of roots, Chapter 1. Cf. also *ĉḪ-n-* 'goats and sheep' (see 138 below); *dam, *ḥam(-w-)* v. CVC. (see n. 145 below).

(2) Pattern CVC: (a) **ʔat-(a:n-)* (< **ʔət-(a:n-)*) 'she-ass', **baḳ-(a)r-* cow, cattle';[129] **gam-(a)l-*[130] *'camel'; *gʷar-(a:n-)* 'throat'; **yad-*[131] 'arm, hand'; **lax-r̥-* 'sheep'; **las-(a:n-)* 'tongue'; **qas-t-* 'bow';[132] *ĉap-t-*[133] *'lip';* with reduplicatio n*kab-kab-* (> **kawkab-, *kakkab-*) 'star'.

(b)[134] **ʔəl-* (> *ʔila:h-*) 'god'; **bən-* 'son; **ʒəʔ-b-*[135] *'wolf'; *ḥəm-t-* 'poison'; **mət-* 'man, husband'; **n̥š, *nəš* (?) 'people'; **səm* 'name'; **sət-* 'behind'; **təh-(a:m-)* 'sea, seaside'; (cf. also the numeral **čən-* 'two' and also **šəm/n* 'if'); with reduplication: **gʷəl-gʷəl-t-* 'skull'; compound root: **sən-bəl-t-* 'ear of corn';[136] cf. also the pattern CVCCVC; probably also **kər-r* 'lamb (but *kar(r)-* in Hebrew; secondary?).

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129. In the Palestinian Aramaic dialect a form *buqr-â* is attested, probably under the influence of the contamination of the CVCVC and CVCC, and of C*a*CC and C*i/u*CC patterns usual for Aramaic.

130. This word is attested in the variants **gam-l-* and **gam-al-:* Hebr. *gå:må:l* < **gam-al-*, Aram. *gaml-â* (< **gam-al-* or < **gam-l-*), Arab. *ǧaml-* and *ǧamal-*. The Akkadian form does not fit into the pattern (*gamma:l-*, cf. the borrowing into Sumerian **AN$E.GAM.MAL**). In any case, the pattern C*a*C:- (*gamm-*) is an allomorph of the pattern C*a*C-.

131. Akk. *ʔid-* (< **yad-*), Hebr. *yaḏ* (< **yad-*), *Aram. yəḏ-â, Eth. ʔəd*, Arab. *yad-*. This word exhibits a number of irregularities in several Semitic languages, and one might surmise that it is an expansion of an original one-consonant root **d-*, analogous to **p-* 'mouth'; cf. Egyptian *d* (hieroglyphic for) 'hand', *d-y* 'five'; cf. Hausa *ʔafi* 'mouth', etc. But, for example, Eth. *ʔaf* is probably < **n̥f*.

132. Cf. also Arab. *qaws-* (< **ḳaws-*) - a root variant?

133. The isolated Arab. *šifat-*, alongside the regular *šafat-*, might be an ancient diminutive. Aram. *seṯ-a*. The Hebrew st. constr. dual *šiṯê* is of course, from **ĉaptay*.

134. The nouns of this pattern tend to contraction in sandhi, (from an earlier *Allegro-Aussprache*), hence the Arabic forms *(i)bn-*, *(i)sm-*, *(i)st-*, *(i)ðn-*; cf. also above on the fate of the root **nəš-*. It would be natural that the word 'god' should be less subject to such contraction, cf. however Arab *alûâ:h* "God' from **al-ʔila:h-*.

135. Hebr. *zəʔe:b* (< **ǯiʔ(i)b-*), cf. *bə'e:r, bəʔo:r, rəʔe:m*. See nn. 103, 127 above.

136. Cf. Eth. *qʷi:nfəz*, Arab. *qunfuð-* (Hebr. possibly *qippo:ḏ*), but Aram. *quṗd-â* 'hedgehog' (< **quppəðâ*?).

(c) **kḫc-* (?) 'bowl' (see n. 97); **rḫs-* (?) 'head';[137] **ĉḫn* see under (1).[138]

(d) **bṯ-* 'house'; **lič-*, **nič-* 'lion';[139] **ʕin-* 'eye, source'; *ĉib-* 'gray hairs, old age; old man, elder'; **čin-*'urine'.

(e) **yum-* 'day'; *kus-* 'bow';[140] **mut-* 'death', *kul-* 'voice'; *čur-* 'bull, ox' should be analyzed as *ču-r-*, see above.

(f) **kl-b-* 'dog'.

(g) **qnḥ-* 'flour'; **šn-s(n)*[141] *'sun'.*

(h) possibly **Hʷnč* 'woman', var. *ʔnč*: Akk. **ʔaššat-*, Arab. *ʔunθ-* 'woman(hood)'; Hebrew *ʔiššat-* 'woman' (influenced by *ʔiš* < *ʔinš-* 'man'; cf. also plural *nåš-im* < **nač-*(?)), Aram. *ʔitt-ət-*, Arab. *ʔunθa:*; **Hʷənf-* 'nose'; Arab. *ʔinf-*, *ʔunf-* is a root-variant of **nf* 'nose', Arab. *ʔanf-* (regular).

(i) **wrk-*[142] 'green, yellowness'; **mr?-*,[143] *ʕrĉ-* 'couch'; **kr/lb*[144] 'intestines'; **qrn-* 'horn'; **zrʕ-* 'seed'.

(3) Pattern CVCC: (a) **ʔab(b)-* (?) 'father'; **ʔax(x)-*[145] 'brother'; *baqq-* 'gnat'; *kall-a:t-* 'bride, daugther-in-law'; **kapp-* 'palm of hand';, *ʕamm-* 'uncle; fore-

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137. Akk. *re:š-* (< **raʔs-*), Ugar. *rʾs* [raʔs-], Hebr. *rôš* (< **raʔs-*), Aram. *re:š-å*, *ri:š-å*, Eth. *rəʔs*, Arab. *raʔs-*. The Aramaic form might be traced to **raʔs-* or **rīʔs-*, the Ethiopic one probably only to **rīʔs-*, although forms resulting from **raʔs-* also exist in this group of Semitic languages. In Hebrew are attested also the derivatives *rîšôn* (< **rīʔs-a:n-*) and *re:šît* (< **rīʔs-i:t-*). Such forms are probably late and belong to some "*i*-dialect", and perhaps it is to the influences of such patterns as **rīʔs-a:n-* formed by analogy to *gira:n-*, *lisa:n*, etc. that the variant **rīʔs* is due, which we encounter alongside **raʔs-*?

138. Akk. *ṣe:n* (< **ĉaʕn-l*(?); possibly from **ĉaʔn-* under the influence of the emphatic?); Hebr. *ṣôn*, Aram. *ʕa:n-å* (< **ġaʔn-(h)a:*), both regular; but is Arab. *ḍaʔin-* secondary?

139. **layč-* 'lion' is perhaps related to **laʔ-b-* lion' cf. the numerous alternations *ʔ* ~ *y*, *y* ~ *w* both in nominal and verbal roots. Edzard has suggested that the original form is **nayč-* (attested in Akk. *ne:š-*), while *layθ-* is formed by analogy to *labʔ-* (< **laʔ-b-*?). The latter is an "areal" word, occurring not only in Eg. *rw* (read [lau]?), but also in Greek *leo:n*, Latin *leo.*

140. Only in Arabic (*qaws-*); a borrowing , or a root variant of **kas-t-?*

141. Hebr. *šämäš* (< **šamš-*), Aram. *šimš-å*, *šəmaš* (see Chapter 1, p. 16). Sab. *šms* and Arab. *šams-*, both result from dissimilation; as in all cases of $C_1C_2C_1$ roots, the prototype is **šn-šn* or **šam-šam* (idea of A. Militarëv).

142. This root is attested also as a verbal one (**wrq*); hence it is difficult to decide whether such variants as Arab. *waraq-* 'leafs', Hebr. *yå:rå:q* 'green', 'vegetables' alongside Akk. *warq-*, Hebr. *yărăq-* (< **yarq-*), Aram. *yarq-å* '(yellow-) green', or conversely, or both, are derived from the verb. The root is AA (Eg. *yʔq-i* < **yaʔq-at* 'onion', Berb. *i-uraγ* 'became yellow').

143. Meanings: Akk. *ma:r-* < **marʔ-* 'son', Aram. *marʔ-å* (the most ancient form), *mary-å* etc. 'lord, master', Arab. *marʔ-* 'man'.

144. Akk. *qerb-* 'inside'; Arab. *qalb-* 'heart'; cf. Eg. *qʔb-* 'intestines'.

145. The phonemic structure of these roots is not clear: Akk. *ʔab-* but with zero inflection *ʔabu*, *ʔabi*, pl. *ʔabbu:*, Aram. *ʔab*, *ʔᵃb-å*, *ʔabb-å*, pl. *ʔabåh-åt-*; Arab. *ʔab-*, *ʔabu:*; *ʔax-*, pl. *ʔixw-a:n-* etc.; Ge'ez *ʔəxʷ* and others. In the languages of other families of the AA phylum, forms for the word 'father' with reduplicated *-bb-* are attested in Berber and Cushitic; Hausa *ʔuba*. Several solutions are possible, but I would favor a reconstruction of *ʔab-* + class marker of kinship terms *-u*. Here belongs also **ḥam-w-* 'relative by marriage, person not enjoying full rights in the patriarchal family' (hence *ḥmw* 'helot' in Egyptian). Moreover, *ʔəmm* 'mother' may also come from **ʔəm-w-*, and so may *kall-åt-* 'bride, daughter-in-law' < **kall-aw-at-?*

father; tribe'; **ĉarr-* 'chief'; **çarr-* 'rival, enemy'; **samm-* 'grass'. Probably belongs here also **ʔayy-al-* 'deer', **nayy-al-* 'a sort of antelope';[146] cf. n. 130 on **gamm-al-*.

(b) **ʔəmm* 'mother'; **ləbb-* 'heart'; **ʕəç(ç)-*[147] 'tree, logwood'; **sənn-* 'tooth'; **çəll-* 'shadow, shade'.

(4) Pattern CVCS: (a) **Hʷahḷ-* 'tent, tribe'; **baʕ*, or *bʕl* with syllabic sonant *ʕ̩* 'lord (of the house), husband'; **ragḷ-* 'foot'; *čaʕl-ab-*(?) 'fox'; **baṭn̩-*[148] 'womb'; **nasɣ-* 'vulture'. The vocalism depends in several cases on the contact of the vowel with the consonants *ʔ*, *Hʷ*, *h*, *ḥ*, *ʕ*: **ḥVbḷ-* 'rope'; **ḥVqḷ-* 'field'; **ṭVʕm̩-* 'taste' etc., **ʕVçm̩-* 'bone'; **lVḥy/w-* 'chin, beard'. More obscure is **laʔb-*, perhaps < **lḃ-b-*[149]

(b) **bʷənḭ-* 'vessel'; **bəṭn̩-*, var. **bəṭn̩-* 'pistachio nut'; *rəʔm̩-* 'wild ox'; **bəʔɣ-* or **bəHʷɣ-* 'well'; **kʷəṭṛ-* 'smoke'; **kʷəḷi* 'kidney'; *çəpr-* 'finger-nail, claw'; **ĉəʕr-* (?) 'hair'.[150]

(c) Unclear is the vocalism of the following roots belonging to the same pattern: **kVlḭ-* 'vessel, ship'; **pVrḭ/ḃ-* 'shoot, scion, offspring';[151] **ʕVqr-ab-* (see nn. 113 and 117) 'scorpion'.

(5) Pattern CVCVC: (a) **ʔačar-* 'place' (< **ʔəčr-*?); **baraq-* (?) 'lightning'; **ǯakar-* 'man, male'; **ǯaqan-* 'beard'; **kanap-* 'wing'; **lahab-* 'flame' (derivative from a verbal root?); **sakar-* 'intoxicating drink' (on this group of roots, see 4.6.2.2.); **samaːi/ʔ-* 'heaven, sky'.[152]

(b) **dəbas-* 'date treacle, honey'; **ʕənab* 'fruit, grapes'.

(c) The existence of primary nominal roots of the pattern C*a*CəC must be regarded as doubtful.

(6) Pattern CVCCVC: see under CVC.

The pattern CVCCVC seems always to be the result of a compounding or redoubling of roots. It is rare in Semitic. The roots belonging to it tend to be adjusted

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146. In Akkadian; but (also in the Cushitic language Beja: *naːʔi* 'goat').

147. Suppletive only in Akkadian and Ethiopic: Akk. *ʔiṣ-*, pl. *ʔiṣṣuː*; Eth. *ʕəḍ*, pl. *ʕəḍaw*. In the other Semitic languages it is formed according to the pattern CəC-: Hebr. *ʕeːṣ* (< **ʕiṣ-*), Arab. *ʕiḍ-at-*; but Aram. *ʔaʕ-å* < **ʕaʕ-å* < **ʕiḳ-*(*h*)*å*.

148. The form with a suffix, e.g. *biṭn̩-iː* is, of course, from **baṭn̩-iː*.

149. The root is reflected not quite regularly in the various languages; Akk. **labʔ-* (and later, according to rule, > **laːb*, *labb-*), Aram. *labʔ-*, but Hebr. *labʔ*, Arab. *lab-aːt-*, *labuːʔ-at-* 'lioness'. Is this a metathesis from **laʔ-b-ʔ*

150. The Akkadian form *šaːr-t-* reveals no traces of *ʕ* (we should expect **šeːr-t-* or **šeʔer-t*). However, similar phenomena are also observed with some other Akkadian words from roots containing an *ʕ* in the PS prototype, e.g. *ʔaqrab-* instead of **ʔeqreb-*.

151. These roots should probably be reconstructed as **kalʕḭ-*, **farʕḭ-* with stress on the syllabic sonant and reduction of the first vowel.

152. The vowel length is here apparently due to analogy with **maːy* 'water', see n. 81: both words are used as *plurale* (or *duale*) *tantum* and even rhyme: Akk. *šamaːʔ-u* ~ *šamaːm-u* (like **maːʔ-u*, *maːm-u*), Hebrew *šåmayim* (dual, like *mayim*), Aram. *šəmayyå*, Ge'ez *samaːy*, Arab. *samaːʔ-*.

to other more frequent patterns, and the original type is often preserved in one or two Semitic languages only. The pattern is otherwise reflected irregularly. It is more frequent, for example, in Chadic.

4.8. Root and word formation. The rules of root-formation in PAA probably were essentially the same as in PS. As to rules of word-formation, they cannot be formulated exactly for the other families of AA except the Semitic, but it seems evident that they were, originally, very similar, at least for the primary nouns. This can be shown by a number of instances where the form quoted above as Semitic can be attested also in the other families of AA:

(1) Pattern CS: PAA **ʕʷr̥* 'attack': Semitic: Arab. *ɣa:r-* 'army'; Cushitic: Iraqw *xwar* 'to beat up'; Chadic: Hausa *hara* 'raid' etc.; PAA **ḳʷ* (and variant *ḳʷəl*) 'voice, call' etc.

(2a) pattern: PAA **śm̥-(śm̥)* 'burning, sun'; Semitic: Akkadian *šamš-*, Soqotri *šam* 'sun'; Berber: Ahaggar *-ssam* 'lightning'; Egyptian *šʔm* (< *śaʔm-*) 'to be hot, burning'; Angas *lem* 'sun'.

(2b) Pattern CəC: PAA **Hʷəs* 'fire': Semitic: Akkadian *ʔiš-a:t-*, Hebrew *ʔe:š*; Chadic: Montol *us*; PAA **čən* 'couple, two': Semitic **čin-*; Berber *sin*; Chadic: Gisiga *čen*.

(2c) Pattern CSC: PAA **xl̥ḳ* 'rags': Semitic: Soqoṭri *ḥálaq* (elsewhere from the diminutive *xula:q-* and from secondary formations); Cushitic: Beja *halak* Afar *halago* 'rags'; Chadic: Hausa *galko* 'kind of loin-cloth'; Semitic **qawl-*; Cushitic: Somali *ma-qal* 'to hear', Kwadza *kwaʔal-iko* 'voice'; Chadic: Karekare *kal*, Galambu *kwâl* 'to hear'; Jegu *kol-* 'to call'.

(3a) Pattern CaC(C): PAA **dam*, **dm̥* 'blood': Semitic *dam-*; Berber: Semlal etc. *i-damm-ən*; Cushitic: Awngi *damma* 'red'; Chadic: Bolewa *dom* < *dam(mʔ)* 'blood'; PAA **ḳal* 'light of weight: Semitic: Akk. *qall-* 'small, light'; Cushitic: Oromo *qalla* 'thin, slender'; Ometo: Kaficho *ḳal-* 'to be cheap'.

(3b) Pattern CəC(C): PAA **ḳəc/s*, **ḳ̊c/s* 'bone': Berber *-ɣəs*; Cushitic: Sidamo *mi-ḳiččo*; Omotic: Gimirra *ḳus*; PAA **ǯəb* 'fly, insect': Semitic **ǯubb-*; Berber **zəbb-*; Egyptian *zb-t* (< **ǯib-t-*); Chadic: Fali, Gili *ǯiḅi* (< **ǯib-ʔ-*).

(4) Pattern CVCS: PAA **ṭalḭ* 'cub, child': Semitic: Aram. *ṭaly-* 'boy'; Berber: Tawlemmet *a:-ḍe:l* (< **-ḍayl-*) 'calf'; Chadic: Hausa *ta:liyo:* 'young animal'; PAA **kəčr* 'fat: Semitic: Arab. *kuḍr-*; Berber **-kəṭ(ṭ)ar*; Chadic: Hausa *kiçe*, Ngama *šidar* < *kičar*; PAA **təʔn* 'fig, date': Semitic: **tiʔn-* 'fig'; Berber **tiɣn* 'date'; Chadic: Sura *tiŋ* 'tree'.

(5) Pattern CVCVC: PAA **pVṭVs* 'hammer': Semitic **pi/aṭṭi:s*; Berber **-fəḍis* (on the lengthening of the second vowel, see Chapter 5).

This short list shows that the PS nominal roots/word patterns listed above in 4.7. reflect also the PAA situation.

The number of roots with other patterns of structure that might claim to be primary nominal roots is in Semitic very limited.

4.8.1. It may be expedient to dwell briefly on some anomalous and doubtful forms historically attested in the individual Semitic languages.

We have already noted some processes which were called forth by rhythmic analogy (**čəm* > **čum-* > **θu:m-; *mɬy* > **maʔy-* > **ma:ʔ/y-; *ĉH̬-* > **ĉaʔ-* > **ša:ʔ-*, etc.). An important circumstance which could bring about changes in the primary vocalism seems to have been cases of zero inflection. While the CVC pattern (with a "pure" vowel) would result in CVC#, and the same happened to the CVC: pattern, the patterns with sonants (CS, CSC, CVCS) could be subjected to certain changes. Theoretically, the patterns CS and CVC should not cause difficulties because S can here become syllabic in Auslaut and, consequently, these patterns should yield such forms as CS# > C*a*S#, CVCS# > CVC*a*S#. This is, in fact, what we observe at least in two Semitic dialects: in the Assyrian dialect of Akkadian, where the CVC- pattern with zero inflection results in *ʔuzan*, *ṣupar* etc.,[153] and apparently also in Aramaic, at a very early stage, where the corresponding forms were, as it seems, **ʔiðan*, **ḏipar*, whence in the historically attested period *ʔᵉdan*, *ʔidn-å; ṭəpar*, *ṭipr-å*. Then also, by analogy, such forms as **šamaŝ* > **šəmaš* were accompanied by such forms as *šimš-å* instead of the expected **šamš-å*; likewise **baṭn-* 'womb': *beṭn-a*, *buṭn-å* etc. The result is, that in Aramaic the original patterns $C_1iC_2C_3$ and $C_1aC_2V_3$ are often reflected irregularly.

However, it seems that S could be reflected not only as *-a*S but also as *-Sa*. Hence, through *Systemzwang*, there may have emerged, as a more general rule, the free variations: zero inflection ~ *-a* inflection from which may be deduced the ending *-a* (parallel with zero) of the predicative form of the noun in the most ancient Akkadian (as attested by the earliest borrowings into Sumerian, and partly in Akkadian PN), and in the most ancient Amorite; and hence, the ending *-a* of the stative (= *predicative, or the zero-case use of the *verbal noun) < "new Perfect" in Arabic, Ugaritic and Amorite as contrasted to zero in the corresponding form in Akkadian (and Canaanite?); also the *-a-* inflection of the Accusative if, as we have suggested, the Accusative was a development of one of the variants of the "absolute" case (zero case), expressing in languages with an ergative construction of the sentence both the subject of a state in general, and also the subject of a state resulting from an action, i.e. the direct object of a transitive verb. Such an "ergative construction" seems to have preceded the historically attested "nominative construction" of the sentence in Semitic (cf. *SHL* p. 58; *JaDPA* p. 213). Possibly the suffix variants *R-b-~R-ab-*, *R-l-~R-al-*, *R-r-~R-ar-*, *R-t~R-at-* might be traced to this phenomenon (*R* being the root morpheme, originally with final *S*, and then by analogy, with any final consonant).

In most of the Semitic dialects, however, the patterns CVCS- with zero inflection began to acquire a vocalism analogous to the CSC-pattern. In this case, a development *CSC > *C*a*SC was impossible: so long as S was a vowel, the sequence *CSC was of course a normal syllable and therefore could combine with both zero and vocalic inflection. Yet, as soon as it became a diphthong *a*S, the S became non-syllabic = consonantal, and therefore the rule forbidding two consonants at the end of a syllable came into action. This meant that CSC# had to develop into C*a*S*a*C# (also C*a*C*a*S#, and by analogy even CVCVS when the pattern was CVCS). In several instances, this

153. Thus also, by analogy, in derivative nouns of the patterns $C_1aC_2C_3$, C_1i/uC_2C_3.

vocalism became normal for the word in question, even with vocalic inflections, hence the Hebrew forms **buk(u)r-*, **zi?(i)b-*, **ri?(i)m-*, or the Arabic *ḍuf(u)r-*, *šaʕ(a)r-* etc.

4.8.2. Then, phonotactic conditions existing in Akkadian and Aramaic brought about a virtual contamination of the patterns CVCVS and CVCS as well as *CaSaC* and CS̱C. With a zero inflection one would, theoretically, expect to be able to distinguish between patterns of the types *CaCiS* and *CaSiC*, on the one hand (probably these were usually derivative nouns), and patterns of the types *CaCaS* and *CaSaC*, or the other: the last named types corresponding also to the original *CaCS-* and CSC- patterns. But in practice this led to a merging of patterns (cf., e.g., Akk. *karš-*, *karaš-* 'stomach', Aram. *kirs-a:*, *kars-a:*, *kəres*, Eth. *karš* but Hebr. *kå:re:ś*, Arab. *kuriš-* and even *kirš-*; or Akk. *malk-*, *malik#*, *Hebr. *mäläk* < **malk-* (but st. constr. pl. *mal(ə)ke:*), Aram. *malk-a:*, *məlek*, Arab. *malik-* 'king'; Akk. *napiš-t-*, Hebr. *näp̄äš* < **napš-*, Aram. *nabš-å*, Eth. *nafs*, Arab. *nafs-* 'soul, breath'. The last two words are pretty certainly derivative. Generally speaking, any nominal base pattern which may be written as $C_1VC_2C_3$, where $VC_2 \neq$ S and $C_3 \neq$ S, is suspicious from the point of view of the probability of its primary origin, even if the verbal root in question has not been preserved in the historically attested languages; still more so if there does exist such a verbal root, even though traditionally the verb has been thought to be secondary, and the noun to be primary.[154] The same is true of the pattern *CəSC; for instance, Common Semitic **bərk-* 'knee'; Akk. *?ikk-* (< **ḫink-*), Hebr. *ḥe:k* (< **ḫikk-* < **ḫink-*), Aram. *ḫikk-å*, *ḥenk-å*, but Arab. *ḥanak-* 'palate', (< **ḫnk* < **ḫink-*?), etc.

4.8.3. At a very early period "re-vocalizations" of primary nominal roots to form diminutives must have appeared, formed after the patterns *CəCa:C*, *CəCi̯:C*. The first pattern later lost its productivity, and the forms in question lost their diminutive or affectionate connotation, as e.g. **?ina:s-*, **'una:s-* '(hu)man' (in contrast to animal); and by contrast and analogy also (?) *?ila:h-* 'god'; *?ina:?* 'vessel', *ʒuba:b-* 'fly', **ču∫a:l-* 'fox',[155] *liba:b- 'heart'; also augmentatively, cf. Hebr *rəp̄å?* 'giant, spirit of the dead'.

4.8.4. Especially numerous are the anomalies in word base formation from primary nominal roots in Arabic. This is natural, because the system of internal vocalic inflection (also as a method of word-formation) has in Arabic developed much wider than in other AA languages. It started with the formation of diminutives and of forms of *Pluralis fractus* (which originated in the sphere of verbal nouns, where it was a device of contrasting abstract and concrete nouns, as well as nouns in the collective sense and in the sense of individual objects formed out of the same root and with an identical basic semantic content; later it overflowed into the sphere of primary nouns). The internal inflection was then made use of for shaping nouns from verbal roots, a process which is much easier in the Southern than in the Northern Semitic languages, where the main stirps ("stem") of a verb is seldom formed out of a nominal root. Then from new verbal

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154. Thus, Northern Semitic **kaṣp-* 'silver' originally means 'a broken off bit (of the ore)', cf. the Akkadian verb *∫kṣp* 'to break up into bits'. As to words like Akk. *?išd-*, Hebr. *?äšäd* (< **?asd-*) 'sole, foundation'; also Akk. *?išk-*, Ugar. *?ušk-*, Hebr. *?äšäk* (< **?ask-*), Aram. *?ešk(ə)-t-å*, Eth. *?əski:t* 'testicle', such roots must probably be derived from **səd*, **sək* etc. The Semitic words **malik-* and **naps-* are probably from (1) the verbal root **∫mḷk* 'to advise' and (2) from **∫nf-s* 'to breathe' < *ŋs* 'nose', respectively.

155. Hebrew *šʕål* (not **šᵃʕôl*!) reflects PS **ču∫a:l-* in the same way as *gannåḇ* beside *gibbo:r* < **gabba:r-*.

roots numerous secondary nouns were created in turn (e.g. Arab. *ʔaðin-* 'ear'), sometimes surviving the verb itself from which they originated. Alongside all this, also the other processes mentioned above are observed in Arabic, as well as in the other Semitic languages. Thus, already in Classic Arabic, a form *ʔuðun-* is attested besides the regular form *ʔuðn-*, cf. in Hebrew the forms **bukur-*, **ziʔib-*, **riʔim-* instead of the expected forms **bukr*, **ziʔb-*, **riʔm*. Typical of Arabic is also the already mentioned phenomenon of contraction of often used words of the type CəC in rapid speech (in sandhi), leading to the emergence of such forms as **bin-* > *bn-* > *(i)bn-* etc.[156] In the following such forms may receive, first in the initial, later in all positions in the sentence, a prothetic, inorganic *ʔi-*, *ʔu-*; cf. also *ʔins-* 'mankind' and Akk. *niš-* 'people (with *ʔins-a:n-* 'human being, man' as a *nomen unitatis*),[157] etc. A similar process occurs when a vocalic (syllabic) sonant is in Anlaut: **r̥ĉ* 'earth' > Sem. **ʔarĉ-*, Arab. *ʔarḍ-*, **n̥f* 'nose' > Sem. **ʔanf-* (also, in Arabic, *ʔinf-*, *ʔunf-*).

Lastly, it must be stated that in PAA as in all "proto-languages", there also existed root variants.[158]

Of course, there remains a certain though small number of roots which so far defy explanation and classification, as e.g. the one-consonant root **p-* 'mouth': Akk. *pi:-*, Hebr. *pä-*, Aram. *pu:m-å*, *pumm-å*, Arab. *fu:*, *fumm-*, *famm-* etc. This root is, incidentally, PAA; probably from **pə/aS̨*, but the original quality of the sonant in unknown.

4.9. The verbal root-system. The sub-system of Semitic verbal roots and of word-bases derived from these differs from the sub-system of primary nominal roots not only typologically but also chronologically. The whole verbal sub-system certainly could not have existed as we know it before the creation of the six-vowel phonological structure, because it is just the vocalism, and, moreover, this particular system of vocalism (and not the one which may be reconstructed for the sub-system of nominal roots) which is the means allowing to differentiate the various grammatical and word-building forms inside the verbal system, including the verbal nouns. It is to this diachronic level that

156. Cf. the traditional pronunciation Hebr. *šnayim*, Aram. *tre:n* for *šənaiim*, *tərə:n* 'two' and the subsequent total loss of *šəwa: mobile* both in Modern Hebrew and in Neo-Aramaic.

157. In this context can such forms as Arab. *ʔibha:m-*, *biha:m-*, Akk. *ʔuba:n* (< **ʔubh-a:n-*) alongside Hebr. *bo:hān* < **buh-n-* etc. be explained. It seems that the origin of this word (meaning 'thumb') must be reconstructed approximately as follows: root **bəh-* plus the already mentioned "individualizing" suffix *-a:m-/-a:n-* < **bih-a:m/n-* or, with the typical contraction of the roots CəC-pattern, from *ʔibh-a:m/n-* with a prothetic *ʔi/u-*, cf. the numerous analogies mentioned above. At the same time a word like **biha:m-* could easily be taken for a diminutive of the pattern CəCa:C, hence a "non-diminutive" form **bəhm/n-* would be "reconstructed". The other forms of the word (which exist, for instance, in Arabic) are obviously secondary. More complicated are other cases, e.g. the word 'finger' which probably may be explained in a similar way: Arab. *ʔiṣbaʕ-*, Hebr. *ʔāṣbaʕ*, Eth. *ʔaṣba:ʕ-t* but Aram. Syriac *ṣebʕ-a°*, also Egyptian *šbʕ*. Cf. also the enigmatic words Akk. *ʔiṣṣur-* 'bird', Hebr. *ṣippo:r*, Aram. *ṣippar-* 'bird', where a series of phonetic changes must be supposed to have taken place.

158. E.g. a number of root variants with alternation **ʔ ~ *y; *liĉ-* ~ **niĉ-* 'lion'; **gʷr̥-* ~ *gʷər* 'throat' (reminding one of Indo-European apophonic correlations); *ṣʁr* ~ *zʏr* ~*ṣʕr* 'small'; Akk. *li:t-* < **liʔ-t-*, Hebr. *le:ʔå* '(wild) cow', but Arab. *laʔa:*, cf. Cushitic *laʔ/w*, Chadic *la*, *lo* 'cattle'. See also on "maizelism" above, 1.2.5.

the mechanism of the Semitic apophony interpreted by J. Kuryłowicz belongs.[159] Therefore (in spite of some points of our disagreement with Kuryłowicz's reconstruction,[160] because some of his relative dates for certain phenomena in Semitic seem to me too late or too early in the light of the data of other languages), in this paper we hardly need to touch upon apophonic laws. Instead, we still attempt, by internal reconstruction, to reach an earlier, "Semito-Cushito-Berber" (NAA) diachronic level. The task is here considerably more difficult than in the sphere of primary nouns, therefore we will limit ourselves to a preliminary sketchy sugestion of a solution. It should be emphasized that any solution has to be, at present, or perhaps will always remain, highly hypothetical.

4.9.1. What is the reason for the fact that the type of the historically attested Semitic verbal root is, in principle, quite dissimilar from the primary nominal root? In a verbal root there may exist three consonants, none of which need to be a sonant even if they cluster, and it is usually impossible to establish any particular vowel as belonging to the root. (Sometimes the vowel of one particular verbal form, usually that of the "Old Perfective", the Western Semitic "Imperfect", is taken to be part of the root, although logically one verbal form would seem as good as another).[161]

To answer the question, we should, as in the case of the primary nominal root, start from the premise that a root can exist only as part of such lexico-grammatical forms that really exist in the language.

In the first approximation we may exclude from our analysis the forms of the Participle of Action and of the *maṣdar*'s, because these forms, as attested in the individual AA languages, cannot be traced back to PAA prototypes, and therefore do not belong to its diachronic level (or, in most cases, even to that of PS).[162] The same is

159. The existence of a two-vowel system in PAA naturally makes one think that all PAA consonants may have been syllabic, with an *a* : *ə* apophony. However, it is difficult to connect semantically the PS and PAA primary nouns of the two patterns C*a*C and C*ə*C.

160. Actually, Kurylowicz proposed two different theories of Semitic apophony, cf. n. 71. The earlier one seems the more convincing, although neither can be adopted unreservedly. K. does not always pay attention to the chronology of grammatical situation.

161. As I have attempted to show elsewhere (*SHL*, pp. 79 sqq.; *JaDPA*, pp. 229 sqq.), the conjugated forms of the AA verbs based on the semantic contrast "imperfective : perfective" (or "durative : punctual"), and on the formal contrast "full vocalism : contracted vocalism" (or, in Cushitic, and possibly in Berber, the formal contrast "*ə*-vocalism : *a*- vocalism") appear to be as old as the system of AA prefixal conjugation itself. But if this proves to be true, then there is no reason to consider the vocalism of the "Old Perfective" (or the Akkadian Preterite) as belonging to the root, more than the vocalism of the "Old Imperfective" (or the Akkadian Present). At the diachronic level when this verbal system originated, it will evidently be correct to consider that there did not exist any stable vocalism which could be regarded as belonging to the root, but that the vocalism had an apophonic character. However, turning to earlier levels of the language, it will be obvious that the personal affixes must have originally existed as separate lexemes, and in this case there is no reason to believe that the root morpheme with verbal semantic would formally differ in any way from that with nominal semantics. This brings us to the necessity of reconstructing the primary verbal root morpheme as, in principle, identical in pattern with the primary nominal root morpheme; which means that it must have included a vowel. In the so-called *verbæ mediæ infirmæ* we can apparently even at the historical level find certain remnants of the primary root vocalism which, in the different contrasting conjugated forms, did not wholly depend on the laws of apophony.

162. Even as stable a pattern as that of the Participle of Action (C*a*:CiC) is not attested in the Southern Peripheral Semitic languages, to say nothing of the other families of the AA phylum.

true of the so-called passive (cf. JaDPA, p. 249 sqq), which also cannot be traced to the PS and PAA level.

Thus, we will have to analyze only: (1) the form of the Participle of State (*CaCaC-*, *CaCiC-*, *CaCuC-*, with the variants *CaCa:C-*, *CaCi:C-*, *CaCu:C-*), which in its predicative use is identical with the stative, a form attested in Semitic (Akkadian and possibly Eblaite, the New Perfect of the later Semitic languages being its later development; in Egyptian ("pseudo-participle"); in Cushitic (Sidamo), in Berber (Kabyle, Siwa etc.), in Chadic (Mubi, IInd preterite), and which hence is PAA; and (2) forms connected with prefixes of the pattern CV-/SV- (e.g. *ma-* which serves to form certain derivative nouns, or *ya-* which serves to form the 3rd person of the finite verb of action, etc.).

4.9.2. Let us now consider the second case. It will appear directly that the peculiarities of the AA verbal structure are connected with the peculiarities of the AA verbal inflection of the fientive (non-stative) predicate (namely, inflection by prefixation). We will also take it for granted that the suffix of a verbal form may be either zero or vocalic. Then, according to the rules of syllable formation as formulated above, the following patterns are not forbidden for a verbal root:

(1) PV+CS(+V)	(PV|CS, PVC|SV)
(2) PV+CVC(+V)	(PV|CVC, PVCV|CV)
(3) PV+CVCVC(+V)	(PV|CV|CVC, PV|CV|CV|CV)
(4) PV+CCVC(+V)	(PVC|CVC, PVC|CV|CV).

Equivalent variants with sonants are also possible: in pattern (2) a sonant can stand both for C and for V, in pattern (3) for C and/or for one of the vowels, and in patterns (1) and (4) for C only.

We can thus make a very important statement, namely that the conditions of existence of the verbal root inside a word do not contradict the possibility of its including three consonants, none of which is a sonant, even if two of them are in contact.

4.9.3. For PS these identical patterns of finite verbal forms can really be reconstructed on the basis of historically attested facts, namely:

**ya-*C_1*ə*C_1*-*, **ya-*C_1C_2*ə*C_3*-*: perfective, verb of motion or of transitive action;[163]

**ya-*C_1*a*C_2*-*, **ya*C_1C_2*a*C_3*-*: verb of intransitive action;[164]

**ya-*C_1*a*C_2*a*C_3*-*: imperfective, verb of transitive action. The bisyllabic root pattern *PV+|CS|CVC, *PV+|CS|CV|C+V is also possible, and is actually observed in the case of the so called "quadriliteral" verbs.

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163. Sem. **ya-ku:n-*, **ya-qṭul-*, *ya-ḍrib-*, *ya-sqi-*; Berb. *i-ssən*, *i-frəs*, *i-gmi* etc.; Cushitic: Beja *e-dir*, *i-fdig*, Somali **ya-qi:n*. Note that we actually ought to spell **yV-* for **ya-* because the form of the prefix is subject to apophony. Here we retain the spelling **ya-* provisionally, see in detail Chapter 5.

Note that while the Semitic languages differentiate the pattern **ya-*C_1C_2*u*C_3*-* (the normal type of the transitive verb) and the pattern **ya-*C_1C_2*i*C_3*-* (verbs of motion and of transitive surface action). The Cushitic languages have only the latter type, which is the normal one for the transitive verb there. This is probably another evidence of the secondary character of the vowel *u*.

164. Sem. **ya-ḫzan-*. **ya-lbaš-* etc., semantically medial unless *a* is in contact with *ʔ*, *h*, *ʕ*, *ḥ*. In Berber this type, if it ever existed, is indistinguishable from the preceding, because **a*, **i*, **u* all become Berber *ə* or zero. In Cushitic, this form (as an evolution of **ya-CaCaC?*) is used for the Imperfect.

4.9.4. Apparently, the mechanism of pattern correlation was brought to uniformity. The leading factor must have been the transition from external to internal inflection. The situation in Hausa may serve as a sort of typological model. (This does not mean that Hausa **retains** the original situation in that respect; it is more probable that the development was different here). In Hausa, at the end of a finite verb (which here consists of a form of a conjugated pronominal copula with actor prefix, and of a *maṣdar*), there is added a vocalic inflection, variously characterizing the verb as stative,[165] transitive etc. Let us assume that in the NAA proto-language the vocalic suffix -V could similarly be the exponent of intransitive action (*-a*) or of motion and transitive action (*-ə*).?? Then, as a result of a very usual process of absorbing the external inflection into the word-base and turning it into an internal inflection, we would, proceeding from patterns known to us from the nominal root sphere (CS, CVC, CSC, CVCS, CVCVC),[166] encounter such forms as: *PV-C*a*S, *PV-C*ə*S; *PV-C*a*C, *PV-C*ə*C; *PV-C*a*S*a*C, *PV-C*a*S*ə*C; *PV-C*a*C*a*S, *PV-C*a*C*ə*S, with the connotations of intransitive or transitive action, respectively. The necessity to distinguish, for verbs of action, forms expressing momentary action (*punctualis*, *perfectivus*) from those expressing duration of the action (*durativus*, *imperfectivus*), very naturally would bring about a system contrasting forms with full vocalism (durative) to contracted (momentary) forms:[167]

*ya-C_1aC_2: *ya-$C_1əC_2$,
*ya-C*a*$S_1a S_1$, *ya-$C_1aC_2aC_2$: *ya-C*ə*S-, *ya-C*ə*C_2- (or *ya-$CS_1əS_1$, *ya-$C_1C_2əC_2$),
*ya-C*a*C*a*S, *ya-C*a*C*ə*S: *ya-CC*a*S, *ya-CC*ə*S
*ya-C*a*S*a*C: *ya-CS*ə*C,

which practically is the verbal system which has been preserved in the historically attested AA languages.

The pattern *$C_1VC_2VC_3$ being acceptable already in the primary noun subsystem, verbal forms of the pattern *ya-$C_1VC_2VC_3$ were obviously also possible. The apophonic pattern would probably be something like *ya-$C_1aC_2aC_3$: *ya-$C_1əC_2əC_3$, with the subsequent levelling with the more usual patterns as above.

4.9.5. The situation made it possible to create new verbal roots with forms like *ya-$C_1aC_2aC_3$: *ya-$C_1C_2aC_3$. In Hausa we may observe the phenomenon of adding various consonantal morphs to the verb. These morphs are gradually becoming part of the lexeme, and of the verbal root in question.[168] We may assume that the mechanism of

165. Thus the Hausa verbal forms in *-u*.

166. These patterns should be regarded as being also the origin of the Participle of State.

167. Cf. Gazov-Ginzberg 1968:18 sqq. If the contrast "*ə : a* = perfective : imperfective" in Cushitic is original, then we must postulate a slightly different way of development of this particular family, cf. Chapter 5.

168. Another side of the same process seems to have been the elimination of such patterns as *ya-|CS, *ya-C|S-V, *ya-|CSC, *ya-*CS*|*C-V*, because they do not allow for contrasting momentary and durative forms. Once *ya-*CaS* is contrasted with *ya-C|əS (and *ya-*Ca*S(*a*)C to *ya-C|SəC, there is no room for a form like *ya-C|S-V (or, respectively, *ya-|CS|C-V) in the same paradigm.

inclusion of the third non-sonorant radical as a "complement" into the PS verbal root[169] was somewhat similar, for instance:

*ya-$C_1aC_2+C_3$ = *ya-$C_1C_2aC_3$, *ya-$C_1aC_2aC_3$,
*ya-$C_1əC_2+C_3$ = *ya-$C_1C_2əC_3$, *ya-$C_1aC_2əC_3$, etc.

4.9.6. In cases where there is no third radical added, if the original root was biconsonantal, the primary pattern *ya-CVC might have been preserved (sometimes with extension to *ya-CV:C under the influence of the rhythmical pattern of triconsonantal stems), or there might be created, by analogy, forms of the pattern *ya-C_1C_2V : *ya-C_1aC_2V. Seeing that such forms {erûpossible with a vocalic suffix, because of the forbidden sequence *-CVV, a non-syllabic sonant, in articulational affinity to the vowel in question (as -ʔ to -*a*-, -*i̯*/*u̯* to -*ə*-) would be added (of course, if the last phoneme of the root was not already a sonant from the beginning); or, again, the last consonant of the root might be repeated: *ya-$C_1C_2VC_2$ (or *ya-$C_1VC:_2$): *ya-$C_1aC_2VC_2$. It is well known how often the *verba mediæ infirmæ*, *tertiæ infirmæ*, and *secundæ geminatæ* alternate in Semitic languages.

4.9.7. The differentiation between quasi-normal triconsonantal verbal roots with the "weak" consonants ʔ, *i̯*, *u̯* as one of their real radicals,[170] and "weak roots" with an imaginary "weak" radical[171] (a fact attested in Semitic, in Egyptian, etc.), although never quite consistently carried out, because of the loss of its cause, corresponds in principle to the original differentiation between the roots of the patterns *$C_1H̯C_2$, $C_1u̯C_2$, $C_1VC_2H̯$ etc., and the roots of the C_1VC_2 (C_1VC_2:) pattern.

4.9.8. The emergence of forms like **kiːs-*, **maːʔ-*, **ya-kuːn-*. which have their origin in prosodic conditions, was probably the impetus which in the long run caused the creation of long vowels as separate phonemes. This, along with the differentiation also of *u* as a special phoneme, greatly extended the possibilities of vocalic inflection, both external and internal (see Chapter 5). Such extension was most necessary because of the scarcity of other means of word-formation in AA languages. But the creation of a complicated, ramified and balanced system of verbal stems and nouns of verbal origin (mainly distinguished only by their vocalism from words of related but different semantic, derived form the same roots) brought about the functional polarity between consonants and vowels so typical of the Ancient and Middle Stages of NAA. The most consecutive and complete development of the system can be observed in Semitic. In order not to break up the associative connections between the manifold nominal and verbal patterns derived from one and the same root, a rigorous conservation of the consonantal skeleton of the root was indispensable. For this reason, positional (phonotactical) changes of consonants were exceedingly rare at that stage. The phonological system of Semitic consonants remained astonishingly stable in the course of millennia.

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169. Cf. *JaDPA*, p. 240. Our work on the *CHVA* shows, that the root-complements are seldom older than the proto-languages of the individual families of AA.

170. Like Akk. *ʔi-šʔal*, *ʔi-šaʔal*, *ʔu-parriʔ*, or Hebr. *yi-swaḥ*.

171. Like Akk. *ʔi-kuːn*, *ʔi-kuːan* (or *ʔi-kân*, here the symbol ":" denotes a glide), *ʔi-bniː*, *ʔi-banniː* or Hebr. *yâ-qm*, *yi-bnä*.

4.9.9. At the same time, the secondary origin of the patterns of vocalism with long vowels (the patterns **faʕu:l-*, **faʕi:l-*, **faʕa:l-* as compared with **faʕul-*, **faʕil-*, **faʕal-*)[172] can still be felt clearly enough, and this has repeatedly been noted in Semitological works. The same can be said of the secondary character of *u* as compared to *i* and of the existence of an original "bivocalic" stage in PAA.[173] It can also be noted that the spectrum of word-formational patterns in such an archaic Semitic language as Akkadian reveals very few examples of patterns with an *i-* or *u*-vowel in the first syllable, while the few such patterns which are there seem to be of later origin than the others (always excepting the very ancient pattern C*å*CS- and its imitation $C_1əC_2C_3$). It seems, in general, that those patterns of derivative word formation in Semitic should be considered the most ancient, which correspond in structure to the primary nominal root morphemes, namely the pattern **faʕl-*, **fiʕl-*, **faʕal-*. It may be necessary to consider even a pattern like **faʕil-* as the result of the infiltration of external inflection into the word-base.[174]

This is the system of verbal root formation as it can be reconstructed for NAA. We now turn to Egyptian, Chadic and Omotic adding also a few words concerning the later developments in Cushitic.

4.10. On the Egyptian verbal system. Recent studies in Chadic seem to overthrow my original idea, as expressed in *SHL* and Diakonoff 1975, of the PAA – or even Pre-PAA – age of the verbal system as described in 4.9. The only link which could have bound up the Egyptian verbal system to the former is the curious *-y* at the end of the Egyptian stative forms (after the personal marker). Probably, this is actually the relic of a copu la, but it need not be a relic of a prefixally conjugated verbal copula: the emergence, and then the complete disappearance of the entire system of prefixally conjugated verb in Egyptian can hardly be dated to the period between the separation of proto-Egyptian from PAA and the first Old Egyptian texts. The copula, if such it was, might have been a pronominal one.[175]

4.10.1. The Egyptian verbal system is extremely complicated, but it can be reduced to the following: the predicate in Egyptian is either stative of fientive.

4.10.2. The stative predicate, expressing (like the Indo-European perfect) the state resulting from a finished action, when without suffixes, corresponds to a subject of the state in the 3rd person singular; the 3rd person plural is formed in the same way as any plural noun. The 1st and 2nd person of the subject of the state are each expressed by a suffixed enclitic pronoun in the direct (absolute) case. If Egyptian, at the oldest stages, had nominal cases, it is evident that the noun expressing the subject of the state (= the

172. See Aro 1965:407 sqq. In such cases, too, prosodic factors could have played a certain role in the formation of vowel length.

173. The bivocalism in PS was a firmly established fact already for Bergsträsser, 1928:5. Note that there are traces of free variation in Semito-Hamitic not only between *i* and *u* but also between *y* and *w* (and, correspondingly *į* and *ų*); see the examples cited in *SHL*, p. 40, 86, 86[70] (the relative suffix *-i-* ~ *-u-*, the morph of the masculine gender *w-* ~ *y-*).

174. Namely of the relative morph **-ə*?

175. It might be connected with the Hausa preverbal pronoun of the 3rd person (probably deictic in origin). See 4.11.1. below.

stative predicate) would be in the direct (absolute) case, presumably zero. The stative is not inflected for aspects or tenses.

4.10.3. The fientive phrase expressing action (transitive or intransitive) is a compound consisting of a noun in an oblique case (presumably the *-ə-case, i.e. genitive and/or ergative), or, in its absence, of a pronoun in the oblique case (possessive), or with a relative morpheme, the "verbal" noun expressing the predicate itself. The relative morpheme may be a preposition (including the *nota genitivi n*)[176] or zero. This morpheme is responsible for the phrase being perceived as punctual (perfective), or durative (imperfective), or modal.

4.10.4. The hieroglyphic writing system permits information only on the consonantism of the predicative word. However, we have good reason to believe that the vocalization did play a by no means unimportant role. As in Semitic (and also Berber and Cushitic), Egyptian had verbal stirpes (or "stems"), among them the iterative D-(reduplicative) stirps (iteration of the last radical), the causative Š-stirps and (at least as relics) also other prefixally marked stirpes. The existence of CV- (or šV-) prefixation means that the rules of verbal stem formation had to be essentially the same as in Semitic, as stated in 4.9. However, the absence of prefixed personal markers means that there was, at least theoretically, no limitation for the use of the nominal root patterns as established in 4.7., i.e. the predicative word could have been as variable in pattern as the Arabic *maṣdar*'s. In practice there would probably have been some favored vocalization for *nomina actionis s. statu*, and for participles of action and of state ("verbal adjectives"),[177] as for example *CaCaC*-, *CaCəC*- (< **CaCaC* + *ə*?), etc. There is no evidence of originally long vowels. The long vowels attested by cuneiform and Greek transcriptions and by Coptic reflexes are the result of the prosodic rules productive at a late period of the Egyptian language's development.

4.11. On the Chadic verbal system. The Chadic verbal system, according to P. Newman and R. Schuh,[178] is essentially very similar to the Egyptian. However, (1) the order of the parts of he verbal phrase is the opposite of the Egyptian, (2) the archaic stative conjugation is absent (attested, up till now, only as IInd Preterite, in the Eastern Chadic language Mubi).

4.11.1. The verbal phrase consists of a pronoun in the possessive case (only in Hausa is the usual 3rd person pronoun **šu* replaced by the pronominal element *ya* similar to the one used in NAA for the 3rd person of the fientive verbs); a relative morpheme; and a "verbal" noun expressing the predicate itself. The relative morph may be a *nota genitivi n* (in the imperfective, Hausa *an*), of a pronominal or verbal-copula origin; or it may be a pre- or postposition.

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176. Eg. *n* is the reflex of two separate PAA morphemes, the relative pronominal particle **n*, and the preposition **l*-.

177. The participle of action, if any, need not have been similar to the Semitic pattern *Ca:CiC*-, since this pattern is not even common to all Semitic languages.

178. Actually, Western Chadic. See Newman-Schuh 1974, and cf. the former interpretation of the Chadic verbal system in Diakonoff, *SHL*, pp. 81 sq.

The morphs denoting the stirpes are mostly suffixed, and thus a process like that described above in 4.7. need be expected: theoretically speaking, there should be no structural difference between primary nominal and verbal roots in Chadic.

4.12. On the Omotic verbal system. Unless Proto-Omotic was a creolized language, not Afrasian proper, we must consider the Omotic verbal system as completely derived out of the archaic stative with its suffixed conjugation.[179] The stirpes morphs are suffixed. Unless there had earlier existed a prefixal verbal system which had been lost without leaving any traces, there is no reason why a system of verbal root formation of the type described in 4.9. should have evolved. It is more probable that here also, as well as in Chadic, there should not have been, as a matter of principle, any difference between primary nominal and verbal roots, and the rules formulated in 4.1.-4.7. ought to have obtained.

4.13. On the Cushitic verb-formation. In Cushitic, the rules of NAA verb formation as formulated in 4.9. apply merely to a limited number of verbs, either only to the auxiliary, or also to the more important non-auxiliary verbs. The other verbs are composed of a verbal noun plus a delexicalized prefixally conjugated auxiliary verb. What the general rules for the formation of such verbal nouns may be, has, so far as I know, never been established, but I suppose that nouns of the primary patterns could also have been used. A few languages, like Sidamo, retain traces of the archaic stative-type suffixal conjugation; there has also evolved a new system of conjugation by suffixes whose origin is obscure. Much research is needed here.

179. The same may refer to Nubian, if it belongs to the AA phylum.

CHAPTER 5

PROTO-AFRASIAN AND OLD AKKADIAN: PROSODY[180]

5.1. The two vowels of PAA. In the preceding chapter we have stated that, except for the ambivalent sonants, PAA had only two vowels, which we conventionally transcribed as *a* and *ə*. This is not a fortuitous hypothesis, as polemically stated by L.G. Gercenberg (1981:36), but the inevitable conclusion from two facts. (1) In the most archaic corpus of Semitic roots (and, probably, also roots in other AA languages), namely, in the corpus of primary nominal roots, practically only three vowels appear, *a*, *i*, *u*, instead of the commonly postulated PS six, *a*, *i*, *u*, *a:*, *i:*, *u:*. (2) In the same corpus, the vowel *u* appears only in contact with labials, or in a limited group of roots in contact with *k*, *ḳ*, *g*, *x* and *ʔ*, which we, on the ground of comparison with the data of the Semitic languages preserving labialized velars and other AA languages, reconstruct as **kʷ*, **ḳʷ* **gʷ*, **xʷ* and *Hʷ*. Hence in the corpus of primary nominal roots, *u* is a positional allophone of *i*.

5.1.1. The aim of this chapter is to construct a logical hypothesis of how these two primary PAA vowels, *a* and *ə*, could develop into the classical six vowel phoneme system of PS,[181] and from it to the twelve Akkadian phonemes, *i*, *e*, *u*, *a; i:*, *e:*, *u:*, *a:; î*, *ê*, *û*, *â* (three sets, because, as we shall show below, Akkadian had not only long, but also superlong vowels). To these twelve, for Late Akkadian we will have to add at least one neutral vowel (in the Babylonian dialect), namely [ă], and perhaps two, [ĭ] and [ă] (in the Assyrian dialect).[182] However, the neutral vowels had no independent phonemic status, but were allophones of the short vowels.

The reader should keep in mind that the following is hypothetical in all the "legs" of the argumentation, and is aimed only at showing that an internally logical hypothesis can be established. Alternative solutions are possible, and, indeed, perhaps inevitable.

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180. In writing this chapter, I greatly benefited from consultations with V.A. Dybo.

181. We must state here at once that we reject the hypothesis popular in the Italian Semitological school, and especially ardently advocated by G. Garbini, of the possibility of spontaneous creation of new phonemes by the splitting or fission of the already existing ones, not conditioned by position, stress or other linguistic phenomena. The creation of phonemes *ex nihilo* contradicts all the experience of the linguistic and especially the phonetic science amassed during two centuries, and has never been substantiated by any valid argument.

182. The clearest position where we encounter these two neutral vowels in the Neo-Assyrian dialect is the nominal inflection. The earlier system Nom. *-u*, Gen. *-i*, Acc. *-a* develops in NAss. into what is spelled *-u*, *-i*, *-u*. If this represented the correct readings, one should assume that the Nominative has survived at the expense of an oblique case, while universally the opposite development takes place. Therefore, we assume that the actual development was Nom. *-u*, Gen. *-i*, Acc. *-a* > Nom *-ŏ*. Gen. *ĭ*, Acc. *-ŏ*. This is supported by what we find in Neo- and Late Babylonian, where the development was *-u*, *-i*, *-a* > *-ə/∅*, see Hyatt 1941. A neutral vowel must also be postulated in a number of other unstressed positions in Neo-Assyrian.

The state of investigation into the phonetics of the other AA branches does not allow us to consider the history of the vocalism outside of one AA family, Semitic, although we shall refer to PAA reconstructions and in some cases, when possible, to non-Semitic material.

5.1.2. It is our contention that the problem of vowel-length in AA languages is closely connected with the problem of stress.

In languages of the root = word type (and we should probably regard PAA as such at a deep level of its, no doubt, very long existence), the problem of expiratory stress in an individual word does not arise. It is a question of phrase intonation (Gercenberg 1981:21). The syllables of the root = word may, however, differ in musical tones.

Certain fundamental points should here be kept in mind:

(1) A language can be of an even tone type (*ebentonig*, Mayer 1920, cf. Schmitt 1939:19-50, apud Gercenberg), or of a centralized intonation type (*starktonig*). The first type concentrates on word-intonation, the second on phrase-intonation.
(2) In the centralized intonation type languages, melodic tones have less possibilities for development, while in the even intonation type the melodic tones may play an important role. This is, of course, a sort of rule of thumb which historically allows of a number of exceptions.
(3) The expiratory stress tends more toward the central morpheme of the word (or of the phrase, or syntagm, as e.g. determinatum + attribute), but the melodic tone easily glides from the more important to the less important morphemes. Weak, optional stress (as in French) may tend to oxytony.
(4) In the word-form it is the hierarchically most important morpheme (usually the root-morpheme) that is often the strongest and more prominent prosodically. In the even tone type, the musical tone on the root morpheme will be the most stable.
(5) The position after the stress is especially vulnerable to different changes (gemination, aspiration, etc., but first of all contraction). The position before the stress is apt to "anticipate" the changes brought about in the stressed syllabes (Umlaut in the vowels, "weakening" of the stops etc.).[183]

This is something of a provisional framework for orientation.

5.1.3. We have postulated that at the PAA stage the reconstructed roots were "root = words" and, as such, conformed with the general rule for syllable-formation formulated in Chapter 4, namely that no root could begin with a "pure" vowel or more than one consonant, or end in a vowel or in more than one consonant. This means, that a root, if biconsonantal, included either one "pure" vowel (the back open vowel *a* or the front closed vowel which we conventionally mark as *ə*), or one syllable-forming sonant; a non-syllable-forming sonant could function as a consonant in any position. Triconsonantal roots, which are much more rare than the biconsonantal ones, could include either two identical vowels, the first syllable being open, or one of the vowels could be replaced by a sonant, i.e. no primary roots of the pattern **CaCiC*, **CiCaC*, or *CSCSC seem to have existed.

The sonants were *r̥*, *l̥*, *n̥*, *m̥*, and *ʕ̥*; also *i̯*/*u̯* and *ʔ*. When working on the *CHVA*, we usually regarded the latter two (or three) sonants as developments of *ə* and *a* unless their PAA origin seemed reliably attested. Actually, looking through our *CHVA* files,

183. Dybo 1978:56-61; 1980:96-98. Note that infixation into the root of an original suffix (e.g. the plural affix *-a-* in AA) would probably presuppose that the syllable into which it was being infixed had been unstressed.

we find that the roots of the pattern C_1aC_2 ~ $C_1a'C_2$ develop into $C_1a?C_2$- (or, in verbal roots, to either the -$C_1?C_2$ or the -$C_1C_2?$ pattern), while roots of the pattern $C_1əC_2$ develop into $C_1i/u C_2$, -C_1y/wC_2 or -C_1C_2y/w, respectively.

5.1.4. It can be regarded as an established fact that the radical ? (glottal plosive) could also in fact play the role of a sonant (see Chapter 4). We accepted the explanation that the *ʔå:läp*, apart from the initial or intervocalic position, was a *Stød*,[184] or jolt, on the vowel *a*. Therefore we must also accept the suggestion that a specific suprasegmental feature was characteristic of the vowel *a* in this particular situation. We can mark it as **'a* or **a̰*.

Parallel to this is the development of *l̥*, *r̥* etc. into *al*, *ar* (*la*, *ra* in Chadic).

5.1.5. Introducing the notion of *Stød*, known from the facts attested in Scandinavian and certain other Germanic dialects, it is but natural to investigate, what is the accentual situation where a *Stød* arises in the dialects in question. It appears that they are characterized by the opposition of two accents. According to the newer data based upon instrumental observation (E.A. Meyer 1937, Bongstrøm 1938, apud Kacnel'son 1979:192sqq), the opposition is mainly that of sharp dynamic (correptive) stress ' (accent I) and extended more mellow stress ˜ (accent II), while the tonal characteristics (low tone, high tone, falling tone, rising tone, contoured tone) are secondary and not uniform from dialect to dialect. It is actually the correptive stress that is responsible for the well-known Danish *Stød*. However, in some Danish dialects, there appears a double-focused *Stød* which may represent the historical accent II.

Of interest is the fact that for its occurrence the Danish *Stød* requires a certain phonemic base which is either the length of the vowel, or a diphthong, or a short vowel + sonorant. Since we have postulated that on the PAA level there did not exist any long vowels, the analogy, if applicable, should refer to a specifically featured PAA *a*, but also to PAA sonants which, as we have seen in Chapter 4, are responsible for the development of both the usual diphthongs and the "diphthongs": "short vowel *a* + non-syllabic sonant". Note that all sonants, at least in Semitic, develop into *a*S (in Chadic to S*a*), which might point to the similarity of the suprasegmental feature in question both for the sonant and for *a*.

5.1.6. The problem arises, of what kind were the supplementary features which must have existed in PAA in order to distinguish between the rather numerous homophonous roots of one and the same vocalization pattern, as e.g. I: $C_1əC_2$, II: $C_1əC_2$, III: $C_1əC_2$ etc.? They must have formed minimal pairs and thus must have had phonemic status. Did they leave any traces in the ensuing phonemic development? Apparently they did. Some roots seem to have developed from *$C_1əC_2$ > *$C_1i̯C_2$, others from $C_1əC_2$ > *$C_1i{:}C_2$. Even so, the number of homophonous roots of, say, the $C_1i̯C_2$- pattern remains considerable.

Homophonous roots do exist in most languages of the world, but are mostly preserved stably enough only in roots of sufficiently dissimilar semantics not to occur

184. A *Stød*, or "jolt", is a sharp compressing ("correption") of the pharynx during the pronunciation of a vowel, usually but not always followed by an instantaneous closing of the vocal chink (*rima glottidis*) = glottal stop, Smith S. apud Kacnel'son 1979 (*IOSTI*).

misleadingly in the proximity of one another in the process of speech (e.g., Russian *mir* 'world' and Russian *mir* 'peace, agreement' > 'rural community meeting'). In AA languages the difficulty created by the roots being homophonous is diminished by the wide use of root-complements of secondary origin or, as in Chadic, by the development of a sophisticated system of melodical tones on every syllable.

I believe that in this, as in many other things, Chadic is archaic. It is extremely probable that in PAA apparently homophonous roots were distinguished by melodic tones (i.e., High and Low, or High, Medium, and Low). Such tones seem to have totally disappeared in Semitic, but they obtain in many Cushitic and Omotic languages where, however, they have not been sufficiently studied from the comparative point of view. The situation in Egyptian is unknown for the obvious reason of the absence of vocalization symbols in writing. As to the Berber languges, they are of the central intonation type, the stress lying on the dominant morpheme (usually the first syllable of the root), with secondary stresses on every odd syllable after the stressed one. The accent unit is a phrase, including dependent words and clitics.[185]

The feature which has, in the later development of PAA, produced the *Stød* ~ glottal stop, and the development of the sonants into diphthongs, is probably due not to melodic tones as such, but to a delimiting accent, or a change in tone, in other words, to the paradigmatic context leading to the contouring of tones.

5.2. Contours. If, as we have hypothesized above, the development of the *Stød* as well as the development of Ṣ > *a*S were, as in Scandinavian, due to "correptive stress" ˈ (or ˌ), then also the development of *C*ə*C > C*i:*C without diphthongization may be due to some other contouring feature, e.g. to extended stress ˉ (or _), which may easily have led to vowel length. Moreover, as will be seen below, it is highly probable that not one but actually at least two different contours could arise when the original pattern of the root was *C*ə*C.

5.2.1. The verbal roots containing the sonants *i̯*, *u̯*, and *ƀ* (the latter is the one which develops into **a*H > **a*ʔ), often or mostly come from *C*ə*C, *C*a*C. They can assume the form *-C*i:*/*u:*/*a:*C (*verba mediæ infirmæ*) which was to be expected. Some of such verbs retain a short vowel in some forms, but long vowels are typical. But such verbal roots may also assume the shape *-CC*i:*/*u:*/*a:* (*verba ultimæ infirmæ*), with a metathesis of the vowel. The reason for the metathesis is not apparent. Both forms can evolve from the same monosyllabic root (not necessarily from homophones), being sometimes attested in different languages with minor semantic deviation. Here too one suspects that a difference in suprasegmental features is at play, e.g. retaining the original Low tone (or whatever) in one case (say, > *C*i:*C?) and changing from Low tone to Rising (or from High tone to Falling), favoring a metathesis in the direction towards the limits of the word. We shall, however, not try to identify the suprasegmental feature in question. The accents involved in the differentiation of the *C*i:*C and the *CC*i:* patterns, are, however, distinct from the tones which must have been used to keep homophones apart in PAA, because both variants represent the same original

185. Suprasegmental features in general, and the Scandinavian "accent I" and "accent II" in particular, are known to be retained as historical relics when the situation responsible for their original distribution is no longer valid. The lengthening of the vowel need not itself necessarily bring about tonal changes.

*C$_{\partial}$C (or *C$_{\underline{i}}$C) PAA root. Perhaps it has something to do with some PAA paradigmatic phenomena at the morpheme boundary (e.g., the -CC*i:*-type might have more usually been part of a predicate-object unit).

5.2.2. Above (4.5.1., 4.9.5.), we suggested that vowel length may have developed in the verbal roots of the type *-CVC, at least in the area of prefix-conjugation, in order to obtain prosodic (rhythmical) equivalence to roots of the pattern *-CSC, *-CVCVC. We have also noted that the latter two patterns developed in prefixed forms into *P + CSVC, *P + CCVC, at least in the punctual aspect ("P" being the symbol either for the personal conjugational prefix, or for the deverbal noun formative prefix). That such a process of rhythmical levelling was actually going on seems to be suggested by the abundantly attested *$C_1C_2C_2$ verbal roots which in all cases are extensions of an original biconsonantal root, specifically of *C*a*C (or *C$_{\partial}$C but not CS).

5.2.3. The distinction between the two aspects of the verb of action, punctual and durative, was achieved through Ablaut (apophony, namely, punctual *P+C(C)$_{\partial}$C : durative P+C(C)*a*C (thus in Cushitic and possibly in Berber)). Here "P" denotes specifically the personal prefix derived from the personal pronoun in the oblique (ergative) case. In Semitic the form *P+C(C)*a*C is also applied for the punctual, but only in a certain group of verbs (medial according to J. Kuryłowicz), originally perhaps neutral as to aspect. Usually the prefixes in question are 1st person **ʔa-*, 2nd person **ta-*, 3rd person **ya-*, 1st person pl. **ni-* etc., although an **ʔi-*, **ti-*, **yi-*, **ni-* paradigm apparently also existed. However, the 1st person form **ʔi-* can only rarely be attested owing to the well-known influence of the glottal stop on vocalization. Hetzron's recent research (1973/74) makes it probable, that the original paradigm was, in the 3rd person, **ya*-CC*i*C : **yi*-CC*a*C. This apophony, appearing not only in the stem but, in reversed order, also in the prefix, points rather unambiguously to a suprasegmental complementary alternation, e.g. *y^{a}_{+}-C$\underline{i}$C$\underline{i}$C : *$y\underline{i}$CC$^{a}_{+}$C.

For biconsonantal roots the corresponding forms would be *y^{a}_{+}-C$\underline{i}$C : *$y\underline{i}$-C$^{a}_{+}$C. The triconsonantal roots containing a sonant would conform to the same pattern on grounds stated in 4.3.-4.4.

Note that the suprasegmental feature imposed on *a*, which we have marked by "$_{+}$", is hardly the correptive stress responsible for the development of **a*' > **aH* > **aʔ*.

5.2.4. If the verbal root takes the form *(P)+CCV, it acquires a homorganic sonant at the end in order to be able to take on a vowel suffix without violating the rule of syllables (4.2 sq): *P+CC*i*(*y*)-, *P+CC*u*(*w*)-. If the last vowel is *a*, then, since the *ʔälä$_{\partial}$* is not a sonant but a glottal stop and cannot function as a sonant, the vowel *a* develops a *Stød* in lieu of a homorganic sonant: P+CC*a*+V P+CC*aH*+V. If not followed by a vocalic clitic, the verbal forms of the *verba ultimæ infirmæ* are usually realized as P+CC*i:/u:*, P+CC*a:* (a form P+CCaʔ+∅ is comparatively rare and should be regarded as P+CCVC).

5.2.5. At least half of the originally biconsonantal verbal roots have remained biconsonantal, retaining the form P+CV(:)C, but were rhythmically leveled to the pattern of the triconsonantals (including -CSC) by lengthening the vowel, or patterning to P+CCV(:). The original suprasegmental features responsible for the distinction of homophonous roots (if any) may be expected to have been retained or, if changed,

such change does not seem to have left appreciable traces in the subsequent development of the languages.[186]

5.2.6. However, the question arises, what would happen to the suprasegmental features when the aspect distinction was being expressed. As we have seen above, the usual way to express aspects was apophony, bringing about the opposition P+C*i*C : P+C*a*C for biconsonantal roots, P+CC*i*C : P+CC*a*C for triconsonantal ones, as in Cushitic (Zaborski 1975) and possibly in Berber. As also pointed out above, this would probably automatically lead to a distinction in "tone", e.g. $\underline{P}+C\overset{\cdot}{\underset{+}{i}}C : \underline{\overset{P}{+}}+C\underline{a}C$[187].
The other way is the one preserved in the typologically earlier Semitic peripheral languages, Old Akkadian and Old Assyrian (and, in a slightly different form, in Southern Peripheral Semitic). Here the most archaic pattern of the opposition was punctual P+CC*i*C, durative P+C*a*C*a*C. The stress moving from the prefix to the first syllable of the stem, with change of the vowel quality and lengthening of the consonant (or the vowel as in Mehri) probably involved a contouring of the tonal structure, if such structure still existed at the time of the creation of this verbal form. Here the pattern P+CC*a*C is in historical times retained only for verbs of a certain limited semantic range, and is elsewhere mostly replaced by the pattern punctual ʾP+CC*ə*C : durative P+ʾC*a*C:*a*C, where the apophony is more explicitly marked. The tonal structure existing in PS, if any, would probably be the same as in the Old Akkadian durative pattern just quoted. For originally biconsonantal roots *-C*i*C > *-C*i:*C (*mediæ infirmæ*), the durative pattern is, in Old Akkadian and Old Assyrian, P+C*i*ʾ(glide)*a*C. For roots of the pattern *-CC*y* (*ultimæ infirmæ*) the pattern is P+C*a*ʾC:*i:*, but possibly through the intermediate form P+C*a*ʾC*ay*- (in Akkadian, the dipthongs are simplified into long monophthongs).

Note that the semantic classification of the Semitic verbs according to the vocalization of the conjugated forms (-CC*u*C- transitive, -CC*i*C- motion, surface action, -CC*a*C- intransitive action, etc.) seems to apply only to triconsonantal roots. The vowel in the *verbæ mediæ et ultimæ infirmæ* depends solely on the original vocalization of the root (including the sonants *i̯*, *u̯*, *ḇ*). The *verba mediæ infirmæ* seem to be more frequently intransitive (in Akkadian about 66%), the *verba ultimæ infirmæ* are more frequently transitive (in Akkadian over 70 %). Taking into consideration the inevitable semantic changes in the course of time, the statistics seem to show that the *verba ultimæ infirmæ* may have originally been transitive, and the *verba mediæ infirmæ* intransitive.[188]

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186. Suprasegmental features in general, and the Scandinavian "accent I" and "accent II" in particular, are known to be retained as historical relics when the situation responsible for their original distribution is no longer valid. The lengthening of the vowel need not itself necessarily bring about tonal changes.

187. Tones as means of distinction between the punctual and the durative aspects are known in some Cushitic langauges. It goes without saying that the tonal pattern in a modern language may have little or nothing in common with the PAA situation.

188. There are some notorious exceptions, as for example Akk. **du:k-* 'to kill', but the original meaning might have been 'to fight, to be a killer'. Some are from reduplicated roots, such as **zu:z-* 'to divide', etc.; note also *bky* 'to weep' (originally, perhaps 'to lament'), *kly* 'to hold' etc. But the overall picture is impressive. For changes in the place of the (weak) radical, cf. also Belova's law, according to which Eg. **y/w*CC-roots correspond to Semitic *C*y/w*C-roots.

5.3. Vowel contraction. Note that two vowels in contact were forbidden in PS (and probably had been forbidden in PAA), and even when protected by a glide, their combination is unstable. Hence in the Old and later Babylonian dialects of Akkadian we find, for the biconsonantal roots, that the durative form is -C*a:*C; or, more exactly, C*â*C-. Certain verbal nouns, like the participle of state ("verbal adjective", in triconsonantal roots $C_1aC_1iC_3$-), evolve in these cases from C_1a(glide)iC_2- to a contracted form $C_1îC_2$-.

5.3.1. What would happen in this instance with the suprasegmental features? This, of course, depends upon values we ascribe to them. The simpler possibilities are:

(a) V^1 – High or Rising tone, V^2 – Low or Level tone: $i + a > î^2$ with Falling tone;

(b) V^1 – Rising tone, V^2 – Falling tone: $i + a > î^2$ with contoured tone (Rising to Falling);

(c) V^1 – Extended stress, V^2 – Sharp (correptive) stress: $i + a > â^2$ with double-focused Sharp stress (and contoured accompanying tone).

If we, on the contrary, ascribe the V^2 characteristic to *i*, and V^1 to *a*, we shall get a Rising tone in (a), a Falling and Rising contoured tone in (b), and Extended stress, again with an accompanying contoured tone, in (c).

In other words, any contraction of two vowels into a long one results in a contoured tone. Such is the case when both of the contracting vowels had their own tone or stress. The more likely situation, however, is when one of the vowels is unstressed and has a neutral tone. The vowel in question is, of course, the one elided. But in this case, too, we are likely to get a contoured tone on the surviving vowel (Level to High; Level to Rising or Falling, unstressed to either Sharp or Extended stress – the latter situation resulting in Extended stress).

5.3.2. There is thus a difference between a long vowel as the result of rhythmical levelling, where no radical change in tone (or stress) is to be expected, and a long vowel resulting from contraction of two vowels, which results in an extended stress or contoured tone.

5.3.3. In Akkadian, the difference between the two is manifested in their history – quite obviously in Auslaut. While a simple long vowel (e.g. masculine plural *-u:*, *-i:*, verbal forms of the -C_1C_2*i:/u:*-pattern) is in Late Akkadian invariably reduced to *šəwa:* or zero, the long vowels derived from contraction (as, for instance, *rabiy-u-* > *rab*) survive. The difference was noted by von Soden in his GAG, where he introduces the macron (*ī*) for vowels long "by nature", but the circumflex (*î*) for the long vowel resulting from contraction. We shall call the latter "superlong" vowels. That there must have been some difference on the synchronic level between the "long" and the "superlong" vowels, a difference in quantity or in the accompanying suprasegmental features, is evident.

5.4. The stress. We can now discuss the stress situation, starting backwards from the individual languages of the Semitic family and then attempting to reconstruct the probable situation in PS and PAA.

5.4.1. The Northern Semitic languages, exemplified by Akkadian, Hebrew and Aramaic, clearly belonged to the centralized intonation type, with strong expiratory

stress on the hierarchically most important morpheme and ensuing neutralization and elision of post-stress open short vowel, but in Aramaic and to a considerable degree in Hebrew, also of the open short pre-stress vowel. Note that, correspondingly, the systems of versification are in Northern Semitic based on stress. (The same is true of Egyptian, which is one of the proofs that Egyptian, too, was a centralized intonation type language).[189]

5.4.2. Arabic, on the contrary, is an even tone language, with no vowel contractions and, correspondingly, with a metrical system of versification based on the alternation of long and short syllables. Stress is weak (Weil 1958:9). No tones have been observed in Arabic, but a reconstruction of tones at an earlier diachronic stage may prove to be possible.

Moreover, in the Northern Semitic languages a vocalism of the Arabic type can with certainty be reconstructed for an earlier stage of development. This has long ago been shown quite conclusively, and can certainly be taken for granted. This means, of course, that PS was, like Arabic, and even tone language.

5.4.3. Dolgopolsky (1979) suggested that stress in proto-Semitic was "unbound and phonemically relevant" (which probably means an accent **not** of the strong expiratory type). Using almost exclusively Hebrew material, he postulated the following types of stress in the nouns:

A. **Oxytona:** **aˈb-u-(m)*
B. **Paroxytona:** **ðaˈkar-u-(m)* (> *ðikar-* in Akkadian etc.)
C. **Proparoxytona** (= *nomina segolata*)*:*ˈkalab-u-(m)* (> *kalbu-u-m* in Akkadian); **ˈkalab-* in Proto-Hebrew, pl. **kalaˈb-i:ma* > *kəla:bi:m*
D. **Pro-proparoxytona:** **ˈkabas-at-u-(m)*.

From these four supposedly original patterns he derives all the word-formative and stress patterns both in Akkadian and in West Semitic (including Hebrew, Aramaic, and Arabic) by logical construction.

The case of paroxytona was discussed in detail above im 4.6.2. One must take into consideration that not only stems of the pattern *C*a*C*a*C- do develop into C*i*C*a*C- in Akkadian (and not in Akkadian alone), but also stems of the pattern *C*a*C*a:*C- and C*a*C-*a:*C- (PS **las-a:n-*; Akk., Arab. *lis-a:n-* 'tongue'). The latter pattern is obviously PS, but in late AA we find **las-* (cf. Eg. *ns* [ḷas], Berb. *i-ls*, Hausa *ha-lši:* 'tongue'). The stress is either on the second syllable of the stem, or on the word-formative suffix. They appear comparatively late in PAA, where word-formative suffixes are few in number and are always an important type of morph. Note that the question whether **lis-a:n-* is, on the contrary, the **original** form, and Hebrew *lå:š-ôn-* < **las-a:n-* the result of a later levelling, is of relevance for the problem under discussion.

189. The versification both in Northern Semitic and in Egyptian was based on logical (phrase) stress. Thus, two nouns connected by the construct state or, more seldom, a verb and its object may be regarded as having one stress only; in exceptional cases two. Even in an unvocalized Egyptian poetic text it is easy to see where the logical stress was and hence to establish that the versification was based on counting the logical stresses. For each verse, at least in lyrical poetry, there were two half-verses and a cæsura, with two (or three) stresses to each half-verse. See Fecht 1962:161sqq. On Akkadian metrics, see below.

Dolgopolsky's hypothesis presupposes that the *nomina segolaat* (CVCC) are in all cases derived from an older pattern *CVCVC, differing from the paroxytona through the place of the phonemically relevant stress. I do not think that this suggestion is valid. Most of the *nomina segolata* contain at least one sonant and hence are to be derived from monosyllabic nominal roots, as for example CSC. They have the form CVCC- also in Arabic where no stress-induced elisions obtain. Moreover, some of them include ancient word-formative morphs, as **kl̥-b-* 'dog', **ǯi?-b-* 'wolf', **ziḳ-n̥-* 'beard' etc. The only reason for postulating a prototype of the CVCVC- pattern for the segolate nouns are the Hebrew plurals of the type *kəlå:bîm* < **kal-a-b-i:-ma* and perhaps the Aramaic *status absolutus* forms of the type *kəlaḇ*. The latter is however obviously late (< **kalab* < **kalb-* according to the rule of syllables (4.8.1.), cf. status pronominalis *kalbi:*, status determinatus *kalb-å* (< **kalb* + *'(h)a:; *kalab-ha:* would surely result in Aram. **kəla'bå*). Greenberg's explanation for the plural pattern of the segolate forms (infixation of the plural morph *-a-*) may still be valid. Hence Dolgopolsky's "proparoxytona" were originally monosyllabic with stress on the only vowel of the stem. Also Dolgopolsky's oxytona should probably be regarded as paroxytona: Semitics *'ʔab-u-(m) ~ ʔ'ab* 'father', *'ʔax-u-(m) ~ ʔax* 'brother', *'ḥam-u-(m) ~ ḥam* 'father/son-in-law'), *'mut-u-(m) ~ mut-* probably derive from the stems **ʔab-u̯-*, **ʔax-u̯-*, **ḥam-u̯-*, **məṯ-u̯-*, with the class marker **-u̯*. The development into *-u:* and not to **-aw* is due to the difference in the suprasegmental feature, which in this case was not the correptive stress responsible for the development of **-'a* > **-aH-* > *-aʔ*, and of **Ṣ* > *-aS*, but probably the extended stress ¯ obtaining also in the creation of the **-CC̄:* verbal roots (from **C̯C*). The final vowel in *ʔab* is "superlong", see 5.6.1., 5.9.2.

Dolgopolsky's pro-proparoxytona must be regarded as having a main and a secondary stress, which is due to suffixation: *ˌka'bas-at-u-(m)*; cf. his n. 11 on *ˌqa:'bir-at-u-(n)*.

Thus, in my opinion, the Proto-Semitic stress originally fell on the only vowel in a monosyllabic nominal stem, or on the second vowel of a bisyllabic stem. It could be moved to the front (**'ya-*CCV-) or to the rear (**la's-a:n-*) through the influence of hierarchically important morphs (see 5.5.1. below).

5.5. Morpheme types. Turning back to PAA, we must infer that this was an even tone language and that the vowel of the monosyllabic root, or the second vowel of the bisyllabic root must have been originally characterized by some important suprasegmental feature later developing into strong expiratory stress. We may call this suprasegmental feature an *"ictus"*. The influence of paradigmatically connected particles becoming affixes was responsible for the delimitation of the word by contoured suprasegmental features ("tones").

5.5.1. In all languages with a well developed morphology there is a hierarchy of morphemes in the word, and the morphemes have a stable sequential order (Gelb 1969). This is clearly the case in centralized intonation type languages. What is the situation in even tone languages? Before making a decision of classing PAA as to its intonation type, a review of the relevant morphemes should be made. They are relatively few in number:

(1) **Prefixes. (a) Word-formative** **m*V-, **n*V-, **š*V-, **t*V-, **y*V-, all of them coming from different deictic and demonstrative pronouns, mostly preserved also

as independent pronouns, at least in some of the AA languages: *m*V, *n*V, *š*V, *t*V. Stirps-formative morphs **š*V-, **t*V- and possibly **n*V- (Hetzron 1973/74) can also be included here.

(b) Personal prefixes of the verb: **?*V-, **t*V-, **y*V-, **n*V-. All of them developed from independent personal and demonstrative pronouns (probably in the oblique case). The stress tends to move toward the left.

(2) Base (= root + vocalization for the verb, = root for the primary noun). Ictus.

(3) Word-formative suffixes. These are very few in number, the movement of the ictus is to the right, e.g. *-a:n/m-*,[190] *-a.y-/i:y-*.[191] *The long a:* points to an ictus.

(4) Class morphs of the noun (archaic, lexicalized, unstressed): *-n̥-*, *-u̯-*, *-m̥-*, *-i̯-*, *-l̥-*, *-(a)b-*, *-(a)t-* etc. The last one early developed into a feminine gender marker, ousting the more archaic (5a). Most words, however, have zero class marking.

(5a) Gender morphs of the noun: masc. *-i̯/-u̯* (archaic, preserved as such only in Egyptian), or *-Ø*; fem. *-a:(y)*. The length of the vowel points to a comparatively late development. Since no levelling like the one obtaining in the *infirmæ* verbs can be supposed, the length should be ascribed to an original change in accent. The ictus moved forward, possibly with contoured tone. However, since only relics of the archaic feminine morph survive (e.g., in Arabic), we may leave the problem aside. At the historical stage, the opposition in gender is masc. *-Ø-* (unmarked), f. *-(a)t-* (marked) in Semitic (and in NAA generally), but m. **-aw*, f. **-at* in Egyptian.

Note that vocalic gender morphemes could not take on vocalic case morphemes without violating the rules of syllabic structure. This is why Gelb regards *-t-* as originally a glide, a notion that I cannot accept. Too great a semantic load had accrued on this *-t-*. It is my suggestion that the gender morphemes (5a) were sonants *-u̯* ~ *-i̯* and *-b*, and as such could take on vocalic case morphs. An alternative explanation may be that these morphs had originally been enclitic pronouns, appearing or disappearing depending on whether the rheme (namely, the subject of the state or the subject of action) was socially passive or socially active (see more on this under (7)).

(5b) Personal suffixes of the verb: *-t/ku*, *-t/ka*, *-t/ki*, *-nV*. All of them, doubtless, evolved from independent personal pronouns (in the direct case). In some Semitic languages, secondary vowel length appears and the "ictus" moves to the right.

(6) Number suffixes (see below).

(7) Case suffixes (of the noun), **mood suffixes** (of the verb)[192].

The case suffixes of the noun can be grouped into two subgroups (**a**) main cases, which were originally two in number: -zero/*-a* for the subject of the

190. Developed, apparently, from the class marker **-n̥*.

191. Developed from the relative pronoun **i̯*.

192. Both have a common origin, as first pointed out by Riftin, see *JaDPA*, p. 254; Diakonoff 1988:103.

state, *-i/-u* for the ergative and genitive (see 4.4.3. with its note 90). The relation is apophonic, it may be postulated that originally it was *-Ø : i*). We have seen above (Chapter 4) that it is the apophony *-Ø : i* in the declension that is responsible for the specific development of the PAA root system. This means that **both** a zero case **and** a vocalic case must have existed at the PAA level, in order to create the root-formation rules described above. But it was not the ergative alone, with its restricted semantic field, that accounted for this phenomenon. Abundant evidence points to the existence of a vocalic genitive marker *-i* in PAA. The vowel length in the gender marker (5a) points to a comparatively late development. However, apart from Semitic, it seems to have existed also in Chadic. As suggested above, we think that the (5a)-type gender markers may have been separate lexical entities – enclitic pronouns, not an obligatory part of the nominal word-form. It is probably the same (5a) morphemes which appear in Berber *status annexus* forms **prefixed** to the noun (**u-*, **i-*), which again points to their original lexical independence. (b) The other group of case suffixes are the locative ones, all of them consonantal, and all obviously developed from independent postpositions (Diakonoff 1989:61).

(8) **Article**, e.g. mimation/nunation.[193] It originated in an emphatic demonstrative pronoun *ma:*, hence also the Akkadian emphatic conjunction *-ma*. Cf. the interrogative-indefinite *ma:*, etc.

5.5.2. From this survey it appears that at the PAA level (or at some level earlier than the moment of separation of noncontacting dialects out of the PAA continuum), morphemes (1), (5), (5b) and (8) were independent words, while (3) and (4) were also secondary and not obligatory in the word-form. This means that, at least in the singular, a PAA word actually consisted solely of the "base + main case". The base, as we know (4.4.-4.4.4.), at that period coincided with the root, i.e. PAA was a root = word even tone type language.

This means also that it was a language with prevalent word intonation, where supra-segmental features were apt to play a role. But it can also be regarded as certain that PAA had tones, else, as pointed out above, the considerable number of homophonic but semantically unconnected roots (see *CHVA* passim) can hardly be rationally explained.[194]

5.5.3. The development of separate words into affixes of a central word might have been thought to be connected with the development of expiratory stress. However, a development from the even tone type to the central intonation type and back again (since PS was, as we have seen in 5.4. even tone) is hardly probable. V.A. Dybo suggested to me that the process of affixation of originally separate lexemes to a central lexeme could be connected with the formation of suprasegmental sequences, pattern-

193. See Diakonoff 1988:66 on the origin of the mimation from an article (first shown by J. Kuryłowicz).

194. Tones in this case (just as in Chinese) cannot strictly be called a suprasegmental feature. They have certainly become phonematic (semantically distinctive). While in the centralized intonation type languages, e.g. Scandinavian, failing to reproduce the tones does not make the speaker unintelligible (the number of minimal pairs for the feature "accent" is small), in a language of the "root = word" type, as in Chinese, such a dropping of tones does make comprehension impossible.

ing into paradigms. This process can be dated, at the latest, to the NAA proto-language. A similar process must have been going on in Egyptian (see Fecht 1960). As to Chadic, all of its dialects are of the even tone type, with a highly developed tonal system and with distinctive tones usually on all syllables. To what extent does the tonal system here have a paradigmatic character common to the family as a whole, remains to be seen. Word-compounding abounds, as well as word-formative affixation.[195] There is, so far as I know, no transparently coherent system of word-formative infixes. Further investigation by specialists in Chadic will hopefully clear up many crucial problems of the historical development inside this family.

5.5.4. The process of affixation in NAA-languages, seen as a process of developing accent paradigms, suggests that suprasegmental features might have continued into the later languages. Musical tones and tonal oppositions are actually attested not only in all Chadic languages, but they also occur in most Cushitic languages. As pointed out above, their relics seem to have been retained in Semitic, too, although most Semitic languages belong to the central intonation type. All suprasegmental features at the later level, namely pitch, tone and stress, should probably be regarded as a further delevopment of the "tonal" paradigms. But since we can state nothing more than very vague hypotheses concerning the character of the archaic "tones", it is at present preferable to study the Semitic stress patterns as such, without regard to their possible tonal origins.

Operating with Arabic stress, one traditionally applies the rule of the "third mora from the end", a mora, or breve, being the unit of syllable length equal to a short open syllable. A closed syllable and an open syllable with a long vowel are counted as two moræ each unless in final position where the long syllable counts as one mora. This device is inaccurate, as has been shown experimentally, but it is a successful tool for practical purposes:

|yuɣ|ʃa|ru:||lil-|ǧa:|ḥi|li||sab|ʕu:|na||ðan|ban||qab|la||ʔan|yuɣ|ʃa|ra||lil|ʕa:|li|mi||wa|ḫi|dun|||
|˘˘|ˈ˘|˘ |˘˘||˘˘|˘˘|ˈ˘|˘|˘||˘˘|ˈ˘˘| ˘ ||ˈ˘˘| ˘ ||ˈ˘˘| ˘|˘ ||ˈ˘˘| ˘ |ˈ˘˘|˘ |˘||˘˘|ˈ˘˘|˘|˘||˘˘|˘˘|ˈ˘|˘||ˈ˘| ˘|˘ | ˘ |||

The same device is usually applied to Akkadian. It clearly explains the elision of unstressed vowels in post-stress and pre-stress open syllables: **'da|mi|qum* > *'dam-|qu*, **da|'mi|qa|tum* > *da|'miq|tu*, **da|mi|'qa:|tum* > *dam|'qa:|tu*. However, Reiner (1966:38, following Poebel 1939:60) points out that *damiqtu* alternates with *damqatu* and suggests that the stress was on the first syllable of the word: **'da|mi|qum* > *'dam|qu*, **'da|mi|qa|tum* > *'da|miq|tu*, *'dam|qa|tu*, **'da|mi|qa:|tum* > *'dam|qa:|tu*.[196]

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195. Among the affixes we find also the prefix *n̥-/n̥-*, corresponding to the Semitic **ma-* (also **mu-* unstressed); often *ʔan/m-* and *m̥/n̥* in other AA languages. Note that the tone patterns are highly individual in the different dialects, and their genealogical correlation is in many cases not apparent for the time being. However, this is usual for tonal languages. Let us take a much simpler example. While Germanic had only two main suprasegmental features, "accent I" and "accent II", their realization in the different dialects was quite varied, e.g. High or Low tone, Rising or Falling tone, Sharp stress and Extended stress, "Jolt" and Neutral, Neutral and Extension, etc. The "jolt" can also have a number of different realizations. See Kacnel'son 1979:196sqq.

196. *Analogiebildung* could, of course, be an alternative explanation: because of
'malk-u, *'malk-at-u*, pl. *mal'k-a:t-u*, the diverging paradigm
'damiq-u, *da'miq-t-u*, pl. *dam(i)'q-a:t-u* is levelled to:
'damq-u, *'damq-at-u*, pl. *dam'q-a:t-u*.

The suggestion is reasonable insofar as an expiratory stress in centralized intonation type languages usually tends to move to the front, towards the head of the hierarchically main morpheme.[197] However, Poebel's and Reiner's theory is contradicted by certain phenomena. For example, one would expect that the "unstressed **long**" vowel be shortened, which is not the case.

5.6. Length and stress. How do we know that an Akkadian vowel is long? The usual answer is: by the appearance of a *mater lectionis* in a long vowel, but not in the short.

Now the *mater lectionis* in cuneiform writing is in principle quite different from what we call by that term in other, quasi-alphabetical Semitic writing systems. In Arabic, all long vowels are denoted by spelling of a **homorganic consonant** in its place: *KTʔB* = *kita:b*(*un*), *GDYD* = *ǧadi:d*(*un*), *MKTWB* = *maktu:b*(*un*). In Hebrew and early Aramaic the use of consonantal *matres lectionis* is still optional. Their use is called "**plene** spelling", their absence in long vowels is called "**defective** spelling".

In Akkadian, however, a so-called *mater lectionis* is a written sign not for a consonant, but for a **vowel** which is, beginning with the 2nd millennium B.C., sometimes added to a CV-sign ("plene" spelling) -- as is commonly thought, to express length of the vowel: Old Akkadian CV, late CV-V for CV:[198] (in the same way as a long consonant is expressed by adding a VC-sign: Old Akkadian CV-CV, later CV-VC-CV for CVC:V). But how do we know that the vowel in the syllable where the V-sign is added, is actually long? Because in the word-pattern in question the vowel is long in **other Semitic languages**.

5.6.1. The Akkadian *matres lectionis*. In Akkadian, the vocalic *mater lectionis* is not only optional, but is actually used only in a minority of cases. Moreover, in some word-formational patterns where the vowel should be historically regarded as long, it practically never appears. In other patterns, it appears rather often. It is **always** used to denote the contracted superlong vowels in final position and often in the medial. In the early period of the introduction of the *mater lectionis* device, it could optionally be used to mark the length of the vowel in the morphs *-u:*, *-i:* of the plural and in the verbal forms of the *tertiæ infirmæ* type: *(y-)ib-ni-i* etc., but it soon disappears here, possibly owing to the shortening of the vowel in question. On the contrary, it never appears, for example, in the pattern of *nomina professionis* which in the other Semitic languages is C*a*C:*a:*C-. Therefore the *CAD* decided that the corresponding Akkadian pattern is

197. Or beyond it, as in the traditional pronunciation of Arabic, and also of Akkadian: *'yuγfaru*, *'ʔiprusu*.

198. However, in the post-war period it has become increasingly clear that the writing of the vowel-sign, even in the OB period, not to speak of the OAss., was originally intended to express the glottal stop (CV-V for CVʔV; thus *da-a-ar* [daʔar]; always in the transcription of Amorite PN: *i-la-kab-ka-bu-ú* [ila:h-kabkabuhu]), or a glide: *i-ku-ú-an* [ʔi-kuwan]. Also the initial writing of the vowel-sign, both originally and later, stood for ʔV- or *y*V-: *i-ip-pu-uš* 'he makes' is actually *ʔi-ip-pu-uš* < *ʔi-/yi-ppuš*. Thus, in final analysis, the Akkadian *matres lectionis* are not so different from the Western Semitic, though, of course, they probably antedated the latter considerably. Note that the usual later Akkadian spelling *ip-pu-uš* does not imply a loss of the glottal plosive (contra Reiner 1966 § 3.2.). It remained in pronunciation without being reflected in the spelling. Here are some proofs: (1) The borrowed long words beginning in *a-* (spelling!) tend to lose the first vowel: *alaxxi:nu* > *laxxi:nu; amurdinnu* > *murdinnu*) which never happens with native Akkadian words, where the vowel was preserved by the *ʔā:lāp*. (2) Note the Hebrew transcription of Akk. *Nab-kudurri:-(ʔ)uṣur* as NBWKDRʔṢR, Akk. *Marduk-apl(a)-(ʔ)iddin* as MRDK-BLʔDN, etc.

*C*a*C:*a*C-. But it also practically never appears in the pattern of the participle of action C*a:*CiC- where, however, the *CAD* spells a long *a:*, presumably because this pattern is obviously different from **C*a*CiC- (**damiq*(-*um*)), which is also semantically distinct (= adjective of state). Moreover, it is currently assumed that no long vowel in Akkadian could exist in a closed syllable (e.g. *ma:ru* 'son', *martu* 'daughter'; *bu:ru* 'well'; *burtu* 'hole in the earth'; *Su?in* 'name of the Moon-god' > *Sin*). The reason for this conclusion is that a *scriptio plena* never appears in a closed syllable. However, both Aramaic transcriptions (e.g. *syn* [*si:n*]) and Greek ones, dating from the latest period of Akkadian (e.g. ιβωρτ [ib-bo:rt] < *?in*(*a*) *bu:rti* 'in the hole') prove that the etymologically long vowels in closed syllables were very much alive until the end of the history of Akkadian.

The pattern where the *matres lectionis* do appear more often than in others are feminine plurals in -*a:tu*(*m*)/-*a:ti*(*m*), masculine adjective plurals in -*u:tu*(*m*)/-*u:ti*(*m*), nouns with the word-formative suffix -*a:n*-, patterns of the type C*a*C*i:*C-, C*a*C*u:*C- (but **not** C*a:*C*i*C-!). Thus, it actually appears in cases where the long vowel, according to Reiner, would be unstressed, but which are to be regarded as stressed if we adhere to the "third mora" rule.

However, such a rule of "third mora stress" does not rescue the situation. In certain groups of texts (Aro 1953/54), the *mater lectionis* is placed on the **second** mora.[199] As pointed out above, the *mater lectionis* appears in all cases of final contracted superlong vowels, which does not conform either to the idea of the stress falling always on the first syllable of the word, or of the stress on the third mora. A final vowel more than normally long would surely attract some suprasegmental feature in the form of contoured tone and/or stress; but a form like **rabu::* (three moræ) would not be stable. In any text written in the Later Orthography, especially in the later periods, a *mater lectionis* may also be used to express the vowel before an enclitic, either historically long, as in *ik-šu-du-ú-ma* 'and they caught' (*?i-ksud-u:-ma*), or also historically short, as in *ša ik-šu-du-ú-šu* 'that he caught him' (*ša ?i-kšud-u-šu*), or as in *a-na a-li-i-šu* 'to his city' (*?ana ?a:li-šu*) (von Soden 1952, §§38h, 65a, 83b-d). The *mater lectionis* is also used in the "wrong" place in questions, such as *ip-pu-ú-šu* 'are they going to do?' (*?ip'pušu:?*), *qaq-qa-ad-ka-a ka-bi-it* 'is thy head revered?' (*qaqqad-'ka 'kabit?*). In all these cases a real lengthening of the vowel is less probable than a change of the stress to the second or even to the first mora from the end.

The most plausible explanation, as I think, is that the cuneiform *mater lectionis* expresses not length as such, but stress, and, moreover, a certain specific stress- and/or tonal condition.

5.6.2. Stress-shift. As established by Dybo (1980:9-10), in Balto-Slavic there exist dominant morphemes attracting stress, and recessive morphemes "shifting the stress to the left". Hence the stress tends to be placed in the beginning of the first sequence of morphemes of the higher valence. A group of morphemes having equal valence has

199. Thus, in Middle Assyrian Laws: Imperfect 3rd person pl. *ú-pal-lu-ú-šu* "normal" form *?u-pallaš-ú*, -*a-* > -*u-* regressive assimilation of the short(!) vowel -*a-*, but spelling -*u:*, *KAV* 1, V, 84: 3rd person sg. *e-pa-a-aš*, "normal" form *?e:ppaš*, ibid., 2, V, 33: 3rd person singular Stative (in a conditional clause) *ra-ki-i-is*$_5$ "normal" form *rakis*, ibid., 1, IV, 172, etc.

the stress on the first morpheme, a group of morphemes of different valence have stress on the first dominant morpheme. Dybo also points out that "a system of morphological prosodic types is [historically] preceded by a system of phonological prosodic types, i.e. of tones," – but not vice versa.

It is probable that, *mutatis mutandis*, Dybo's ideas can be applied also to other linguistic families, in our case to the PAA phylum and to PS. In the even tone type (root = word) structure of PAA a "phonological prosodic type" and tones would occur. Consolidating the independent words into morphemes of a composite word would, after a stage of "tone" paradigms, probably require a "morphological prosodic type", where attraction of stress to the dominant morpheme(s) takes place. The first dominant morpheme is, of course, the root (for primary nouns), or the base (root + vocalization, for the verb).

5.6.2.1. In Arabic, according to the tradition of recitation of the Koran adopted in Europe, the regressive movement of the stress "to the left" has reached the third mora, which lies mostly inside the base. Yet in the imperfect of the verb and in some deverbal word-patterns it reaches the first syllable of the entire word-form, namely the prefix. There are a number of other Arabic systems of stressing.[200] But the stress in Old Arabic was weak. Whichever system of stressing we adopt, the stress did never result in contractions and elisions.

5.6.2.2. In Hebrew and Aramaic, the stress is strong. The Hebrew rules of stress and of the corresponding contraction of the vowels are rather complicated but can in most cases be satisfactorily explained if one postulates that at an earlier stage (when the noun was still inflected for case, and the verb, in its prefixed form, for mood), the stress fell on the penultimate mora; that is, on the last syllable of the base or on the long vowel of the feminine and/or plural suffix (the long final vowel being counted as two moræ).

For the sake of brevity, we can illustrate this by comparing a few lines of Hebrew epic verse as it appears in the Masoretic vocalization, with their reconstruction in the form they must have had before the fall of he vocalic inflection, i.e. in the period when it was created in the 12th century B.C. (Jud., 5:24 sqq.; stress is here marked by capitalizing the stressed vowel):

təbo:r'aḵ minna:'ši:m Ya:'ʕe:l	*tu'burrak min-na'si:ma Ya'ʕila* (absolute case)
'ʔe:šāt- 'Ḥābār haqqe:'ni:	*'ʔist(a) 'Ḥabri haq-qe:'niyi*
minna:'ši:m ba:'ʔo:häl təbo:'raḵ	*min-na'si:ma b(i-h)a-'ʔuhli tu'burrak*
'ma'yim ša:'ʔal ḥa:'la:ḇ na:'ta:na:	*'maymi sa'ʔal(a) ḥa'laba na'tana(t)*
bə'sepāl ʔaddi:'ni:m hiq'ni:ḇa: ḥām'ʔa:	*bi-'cipli ʔaddi:'ni:ma hiq'niba(t) ḥi'mata*
ya:'ḏa:h layya:'ṯed tiš'laḥna:	*ya'da-ha: l(i-h)a-ya'tidi tisla'ḥi:na*
wi:mi:'na:h ləḥal'mu:t ʕame:'li:m	*wa-yami:'na-ha: li-hal'mu:t(i) ami:'li:ma*

200. In literary Arabic, there are at least two stressing traditions: weak rhythmical stress on the third or even the fourth mora moving to the extreme left (Levantine tradition), or rhythmical stress moving to the left not farther than the third mora, and in the truncated form, e.g. *mad'rasa(tun)*, even the second mora of the remaining word-form (Egyptian tradition). In Proto-Arabic melodical tones were possible. However, even in these traditions we find a phrase-stress with sandhi. The Western and, with time, all dialects later evolve a strong expiratory stress of the Hebrew-Aramaic or Berber type. See Lecerf 1974:322, Cantineau 1961, Harrell 1960. References kindly supplied by Anna G. Belova.

This not only illustrates the development of Hebrew stress but also the original versification (five stresses in the introductory verse, then three stresses on each verse with trochaic line-ends. *St. constructus* and "object+predicate" can have either one stress or two. The versification does not differ from the Akkadian system.

In Aramaic, the Masoretes placed the stress, as a rule, on the last syllable, but in the course of later development it "shifted to the left" in some of the dialects,[201] and fell or still falls on the penultimate syllable.

But if we approach the problem of the stress in (Proto-) Hebrew from another angle, we may say that the stress was placed either on the last syllable of the base (as the dominant morpheme), or on the plural or feminine morph, which thus competed for dominance with the base. This shows, that the stress was not stably fixed on a certain syllable in the word-form, but depended on the valence of the morphemes.

5.6.2.3. It must be noted here, that the accent unit for Northern Semitic (and Berber) languages is not a word but a compound, a syntagm. It includes a word, or a word and either an enclitic pronoun or a particle, or two interconnected words. The attributive word in Semitic invariably follows the noun which it is qualifying. They constitute together one stress unit. The main stress lies on the attributive, and this brings about a certain contraction in the qualified word which makes it necessary to introduce into the grammar the notions of *status constructus*[202] and *status rectus*. But the verb and the object may sometimes constitute one stress unit as well. Following the rule of the second mora, the stress in a syntagm consisting of a lexical word and an enclitic also stays directly before the enclitic. There occur certain changes in the syllable directly before the enclitic, similar to those that occur in a word qualified by an attributive noun. The enclitic is thus a morpheme shifting the stress to the backward, and this stress has greater valence dominating over that of the word-base.

After the loss of the final vowel inflections, there was a general tendency to retain the place of the stress, which led to the prevalence of oxytony, also involving the enclitic: **qaṭal-ˈti-hu:* 'I killed him' > *qəṭal-ˈti:-hu:* > *qəṭalˈti:w*, **qaṭal(a)-hu*: 'he killed him' *qəṭa:ˈla:hu:* or *qəṭa:ˈlo:*). With the noun, the stress moves to the enclitic itself, unless the preceding vowel is long, or just open, or the enclitic has two syllables: **su:su/a-hu:* 'his horse' > *su:ˈso:; *su:su/a-ka* 'thy horse' > *su:sə-ˈkå; ; *su:su/a-kumu* 'their horse' > *su:sə-ˈkäm; *su:sai-ka* 'thy horses' > *su:ˈsä:ka:*, **su:sai-hu:* 'his horses' > *su:ˈse:hu:*, *su:ˈså:w; *su:sai-kumu* 'your horses' > *su:se:-ˈkäm*. It can be seen that the place of the stress does not strictly depend on the number of syllables from the end of the syntagm, but depends more on the comparative valence of the morphemes. From this point of view we can regard the opposition *ka:ˈɬaƀ* 'he wrote' : *ˌka:ɬəˈƀu:* as depending upon

201. Stress both on the ultimate and the penultimate syllable is attested in modern Neo-Aramaic dialects.

202. Reiner (1966, §5.3.1.) prefers the term "dependent declension" of a noun to the term *status constructus*. However, Hebrew has no declension, yet the Hebrew *status constructus* is, as a category, not different from the Akkadian "dependent declension". The Arabic so-called *Status constructus* consists solely of the absence of the nunation (originally a qualifier-article) in the qualified nominal form.

the comparative valence of the plural morpheme (obviously from **ka'tab : *kata'bu:*, but cf. Aram. *kə'ṯaḇ : kə'ṯaḇu:*).[203]

5.6.2.4. It is more or less easy to operate with Hebrew stresses, since they were noted down for us by the Masoretes. The situation is not so simple when it comes to Akkadian. It certainly had another stress pattern. Whether the stress was usually on the third mora as commonly thought, or on the first syllable of the word as suggested by Poebel and Reiner,[204] it could certainly be moved: to the syllable before the enclitic, or to the final "superlong" vowel, etc. From Akkadian versification it can be deduced that the stress pattern was syntagmatical, and that the main stress in the attributive and object-predicate syntagm fell on the attribute and the predicate.

We will again illustrate this by a quotation from an epic text, this time Akkadian:

il-lik ṣa-a-di it-ti-šu ^{f}*xa-rim-ti/tum* ^{f}*šam-xat ú-ru-ma*
iṣ-ṣab-tu ur-xa uš-te-še-ru KASKAL/*xar-ra-nu*
ina šal-ši UD^{mc} *ina* A.ŠAG *a-dan-ni ik-tal-du-ni*
eše:n^{cn} UD^{ma} II^{a} UD^{ma} *ina pu-ut maš-qi-i it-taš-bu*
KUR^{da} *bu-lu mašqa-a i-šat-ti*

['ʔillik çay'ya:də || ʔit'ti:sə xa'rimtə 'Sawxat ʔo:'ro:wa |||
ʔiç'çabtə 'ʔorxə || ʔos'te:ser(ə) xar'ra:nə |||
ʔinə 'salsə 'ʔo:wə || ʔinə 'ʔeqlə ʔa'dannə ʔiktal'do:nə |||
'ʔeste:n 'ʔowə sa'na: 'ʔo:wə || ʔinə 'po:t mas'qî ʔit'tasbə |||
'ʔiksod 'bo:lə || mas'qâ ʔi'sattə]

The stresses are noted according to the "third mora" rule. Reiner's rule would require [... 'çayya:də 'ʔittisə 'Sawxat 'ʔo:ro:wa] etc., which we think less probable. The "third mora rule" results in all verses and half-verses being uniformly paroxytonmc,ûch makes good poetic sense.

This does not include certain cases when the *mater lectionis* is on the second mora because the word is **in pausa**. Note that although in poetry about 90% of the verses have paroxytonic endings (including endings in superlong vowels which may be regarded as having two moræ and therefore conform with the rule), there are a few cases of seemingly dactylic endings, but there, however, we may also suppose a paroxytonic stress **in pausa**. A movement of the stress toward the end **in pausa** is well known in Northern Semitic languages.

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203. The Hebrew Perfect pattern *kå:ṯaḇ* is not from **kataba*, which would yield **kå:tå:ḇ*, cf. **dabanu* 'word' > *då:bå:r*. The Semitic Perfect (originally Stative) had two parallel forms, *C**a*CVC*a* (Amorite [?], Ugaritic, Phoenician, cf. *na:ḏo:r* 'he promised by vow' < **na:da:r* < **nadara*, - Arabic, Ethiopic), and **Ca*CVC (Akkadian, Canaanite, Hebrew; in the latter language however, it is **Ca*CV*Ca*- before enclitic).

204. Reiner (1966, §3.2.), referring to the rule of the third mora (or "stress on the long syllable") usually suggested for Akkadian, says: "this coincidence of stress and long syllable may be characteristic of the native language of many Semitists and Assyriologists, or assumed for Latin and Greek as taught in European schools, but has never been shown to be characteristic of Akkadian". One might note that the rule of the third mora has nothing to do with Greek, and if one wants to be malicious, one might add that the rule of stress on the first syllable is characteristic of the native languages of both Poebel and Reiner. As to Russian, here the stress may fall on any syllable, so that the present author does not think himself biased by the situation in his native tongue.

We shall take it for granted that the PS stress, at least in the northern area of the PS continuum, must have been mobile and depended on the valence of the morphemes. It probably continued earlier "tonal" paradigms.

5.7. Apophony and verbal forms. All this allows us to formulate a hypothesis on the origin of the verbal noun patterns in Semitic.

We have already seen that certain semantico-grammatical correlations in the NAA-languages are expressed by apophony, as in Cushitic: punctual **yV-pris-* : durative (imperfective) **yV-pras-* (Zaborski 1975). This simple apophonic structure underlies the Berber situation as well: punctual *i-rdəl* 'he took', *i-gmi* 'he sought', *i-ndu* 'he churned' : imperfective (*ad*) *i-rḍəl*, (*ad*) *i-gməi*, (*ad*) *i-nda*(*u*).

In Semitic the original form of the NAA punctual seems to have been relegated to the sphere of the verb of motion, or of transitive verbs of surface action: Akk. *ʔi-šdix* 'he marched' (durative *ʔi-šaddix*), *ʔi-šbir* 'he broke' (durative *ʔi-šabbir*),[205] Arab. *ya-ḍrib-u* 'he hits'. A new pattern with *-u-* for *-i-* had evolved for transitive verbs and was used for verbs of transitive action: Akk. *ʔi-prus* 'he divided' (durative *ʔi-parras*),[206] Arab. *ya-nḍur-u* 'he guards'. The vocalization *-a-* was reserved for medial and intransitive action: Akk. *ʔi-lmad* 'he learned' (durative *ʔi-lammad*), OAkk.*yi-blaṭ* (durative *yi-balluṭ*) 'he revived, he started to live', Arab. *ya-ḥzan-u* 'he is in sorrow', Eth. Jussive *yə-lbas* 'let him be clad', Mehri *yi-tbo:r* 'he is breaking'. This subdivision of the verbs into semantic classes was secondary, as shown by the comparison with Cushitic, and short-lived, because the system early lost its relevance, hence the vacillations (Akk. *ʔi-raggam* and *ʔi-raggum* 'he complains'), and the use of the vocalism for secondary semantic differentiation (Akk. *ʔi-raxxiṣ* intransitive 'it overflows', *i-raxxuṣ* transitive 'he washes off').[207] Especially unstable semantically were the *-a*-verbs, because the rather numerous words having the radicals *h*, *ʕ*, *ḥ*, *x*, or *ʔ* in the root adopted the *-a*-vocalization on phonetic grounds, irrespective of semantic class.

It is possible that the introduction of the later so proliferating *-u*-class beside the originally allophonic and etymologically identical *-i*-class was due to the need for stronger differentiation.

In the Central Semitic languages the Old Imperfective had been ousted by the second-in-frequence form of the (originally aspectless) subjunctive **yV-prus-u*, vocalized like the aspectless jussive **yV-prus* and the punctual **yV-prus* (the two were probably differentiated by stress (Hetzron 1969); the latter form being ousted in Central Semitic by the New Perfect, originally the Stative, with a suffix-conjugation). But in the peripheral languages, the durative (imperfective) form was preserved: Akk. *ʔi-*

205. The clarity of the classification is obscured by the existence of denominal verbs of later origin.

206. The verbs of the type **ya-*CC*u*C : durative **ya-*C*a*C:*u*C are used in Akkadian to denote transitive motion (*ʔi-rappud ṣe:r-a* 'he runs/is running (over) the steppe', transitive in Akkadian) and of intransitive action (*ʔi-šaggum* 'he roars' etc.).

207. This is how the verbal *-u-* paradigm must have originally emerged, namely by using allophones for differentiating minor semantic nuances, and then using them for classification of the verbs, probably never quite consistently, but sufficiently often for conferring phonemic status on the original allophone.

'parras,[208] Eth. *yə-'qattəl*, Mehri *yi-to:ber* (but intransitive *yi-tbe:r*, i.e. aspectless).[209] According to Reiner's law (1966, §4.1.2.5.), in Akkadian (probably also in PS?) VC: is equivalent to V:C and vice versa, thus **ya-'parras* is equivalent to **ya-'pa:ras*. Thus, as suggested above, length, not being required by the root = word pattern in PAA, must be due to "ictus" at a period posterior to the PAA.

5.7.1. According to our hypothesis, supported by the Cushitic and Berber[210] data, the original situation in NAA must have been:

PUNCTUAL TRANSITIVE	DURATIVE TRANSITIVE	INTRANSITIVE ACTION (ASPECTLESS)
**y*V-*pri/us*	**y*V-*paras*	**y*V-*p(a)ras*

The opposition is obviously apophonic, yet the apophony is not only *i : a* but also "contracted vocalism : full vocalism". A formal coincidence of the Durative Transitive and the aspectless form for intransitive action has analogies in a number of other linguistic families. The proto-form **y*V-*paras* could easily be responsible for the Cushitic Durative **y*V-CC*a*C and the Berber *ad i-g(ə)məi*. But a differentiation between durative transitive and Aspectless Intransitive was needed. Postulating that the stress was mobile, we suggest that the differentiation was by stress, which could be moved to the morph felt as marking the Durative Transitive:

DURATIVE TRANSITIVE **y*V-*'paras*

ASPECTLESS INTRANSITIVE ACTION **'yV-paras* > *'y*V-*pras*, or **y*V-*pa'ras* > **y*V-*pra:s*, prototype of the Berber prefixed Qualitative.

The emergence of the Intransitive Durative (Akk. *ʔi-rappud*, *ʔi-raxxiṣ*, Eth. *yə-labbəs* 'is clad') should be regarded as secondary.

We have already mentioned that in several Old Semitic languages apophony seems to have occurred also in the personal prefixes: transitive **ya*-CC*i*C, intransitive **yi*-CC*a*C, i.e. reverse vocalism as compared to the stem. Here too, as in the stem, there emerged a differentiation: **yi-* in intransitive verbs (and *-a*-verbs in general), *yu-* in the passive which is a late form (*JaDPA*, p. 249), and, curiously enough, in the derivative D- and Š-stirpes (Arab. *yu-'qattil-*). This may be explained by the not unusual device of contrasting tones on contiguous syllables or morphemes in the accent paradigm. The appearance of unstressed *yu-* in contrast to the stressed *'yi-* and *'ya-* may be a pointer to the development of *-u-* vocalization generally. We suggest, that the original **ə* was retained as a neutral vowel in unstressed position, and later coincided with the *u* which was originally a positional allophone of **ə* > **i*.

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208. This is by far the most frequent form, corresponding to the transitive punctual *ʔi-prus*. Other forms of the Old Imperfect retain the vowel of their corresponding punctual in the last syllable of the durative e.g. *ʔi-rappud*, *'i-šaddix*, *'i-lammad*.

209. Actually the situation is more complicated than the direct opposition of transitive with two aspects (punctual: contracted, imperfect: full vocalism) vs. intransitive (aspectless: contracted). However, the rough opposition as stated does exist and is historically important.

210. Apart from a Stative-Qualitative identical with the Akkadian Stative, the West and South Semitic Perfect, and the Egyptian "Pseudo-participle", Berber also has a prefixed Qualitative of the type **i*V-CC*a:*C (aspectless). This corresponds to the Semitic verb of intransitive action, also originally aspectless, as follows from the Mehri data.

Thus, what we see here is the result of action of both apophony and stress, and probably of tone.

5.8. Deverbal nouns. The same can probably be said of the word-formation in the sphere of deverbal nouns. We shall again limit ourselves to Akkadian as the oldest Semitic language available, but we shall also make excurses into Northern Semitic languages.[211]

A-vocalism:

pars-: the most usual form of the *nomen actionis* in Arabic, less frequent in Northern Semitic: Akk. *ʔakl-* 'food, bread', *qu:l-* (< **qawl-*) 'silence'; Hebrew *läḥåm* (< **laḥm-*) 'food, bread', *qôl* (< **qawl-*) 'voice', etc.

paras-: adjective of state (in Akkadian expressing dimension): Akk. *rapaš-* 'wide, broad', *maʔad-* 'many', *ṣexer-* 'small'; Hebrew *ḥå:ḵå:m* 'wise', *ḥå:d̲å:š* 'new', etc. (< **ḥakam-u* etc.). Also as **pars-*, cf. *ʔå:ḵəl-at-* (< **ʔakal-at-*) 'food'.

para:s-: *nomen actionis*/infinitive; passim in both languages.

parra:s-: adjective expressing constant uninterrupted action; noun expressing profession: Akk. *šarra:q-* 'thief', *galla:b-* 'barber', *dayya:l-* 'spy', *ʔarra:b-* 'a lazy fellow', *nayya:l-* 'sleeper, malingerer'; Hebrew *gibbo:r* (Canaanite form) '(important) man, hero', *gannåb-* (Amorite form) 'thief'; Akk., Aram. *dayya:n-* 'judge', *ma(r)ra:d-* 'rebel'.

pa:ris-: participle of action, passim.[212]

Here the vowel perhaps originally came from **-a-*, but is specially marked (by length, or as I believe, originally by stress and/or tone), to differentiate the word-form from the participle of state. This is also a case of I-vocalism.

I-vocalism:

pirs- : noun denoting an object as the lasting result of an action: Akk. *šipr-* 'message, letter' (< **špr* 'to send'), *širk-* 'present' (< **šrk* 'to present'), *wild-* 'progeny' (< *wld* 'to bear children'), *ʔinx-* 'sigh' (< **ʔnx* 'to sigh'), *mi:l-* 'inundation' (< **mlʔ* 'to fill'); Hebrew *se:p̄är* (< *sipr-*) 'book, text', *ʕäzr-at-* 'help' etc.

paris- : participle of state, denoting the result of finished action: Akk. passim, Hebrew mostly as Perfect of intransitive verbs (*kå:b̄e:ḏ* (< **kabid-*) 'he is weighty, revered'), but cf. also *zå:qen* (< **zaqin-*) '(grown) old', an adjective.

pari:s-: substantive corresponding to the participle **paris-* (see Aro 1965:407-411); Akk. *maxi:r-* 'price' (< **mxr* 'to receive'), *zaqi:p-* 'pale, pole' (< **zqp* 'to plant in the earth') etc.; Hebrew *kəsi:l* 'fool' (< **ksl* 'to be dumb, foolish', etc.). In Aramaic this is the standard form of the passive participle and the passive perfect.

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211. In Eblaite, the spelling is very ambiguous. The scribes mostly failed to use VC signs, and hence CV-CV can stand both for **CVCV*, **CVC:V* and for **CVC#*. There are a number of other difficulties created by the archaic character of this writing system.

212. "Plene" writings (= with *matres lectionis*) are extremely rare, but cf. the spellings *zabbi(:)l-* 'carrier', *zamme(:)r-* 'singer'. This form, semantically identical with **parra:s-*, is either a variant of it, or a spelling for **za:bil-*, **za:mir-* in cases where the active participle is substantivized.

U-vocalism:

purs-: denotes abstract nouns formed from adjectives, probably a secondary formation: *dumq-* 'the good' (< **damiq-* 'good, beautiful'), *ʔuzz-* 'wrath' (< *ʔezz-* id., adj.) *kr-* (< **kurw-*) 'short' etc. In Hebrew it seldom occurs, but see *qo:ḏāš* (< **qudš-*) 'the holy (place)', *ḥoḵm-at-* (< **ḥukm-at-*) 'wisdom'.

parus-: participle of state specifically denoting quality, color, illness etc.: *maruṣ-* 'sick', *daʔum-* 'dark red' etc. Rare in Hebrew, e.g. *ʕå:mo:q* (< **ʕamuq-*) 'deep'.

paru:s-: substantivized adjective corresponding to the participle of state **parus-*: Akk. *batu:l-* '(initiated, marriageable) youth', f. *batu:l-t-*, cf. Hebrew *bəṯu:l-at-* 'virgin' (< **btl* 'to divide from'). In Hebrew, this is the normal form of the passive participle (in the form *kå:ṯu:ḇ*, etc.

We can see that in comparison with the A-vocalism, the I- and U-forms are resultative or passive. An apophony (Kuryłowycz 1958) is certainly at work. Length is specifically used to underline the resultative semantics. Emphatic underlining of the semantic range of the form in question by using length, (while, as we have seen, length originally did not exist in the PAA phonology at all) makes us believe that length was in the first place caused by movable stress shifted to the important (dominant) infixed morpheme, or to the morphophonemic feature distinguishing the pattern (as **parus-* > **paru:s-*, etc.).[213]

There are many more deverbal nominal patterns in Semitic, but we have limited our discussion only to the most typical and probably the oldest ones. Von Soden (1952, §55) lists, for Akkadian (not counting reduplicated, prefixed and suffixed patterns), also the following types that we have not included: **pira:s-* which, as we have see in Chapter 4, is from **para:s-* (cf. also the Akkadian imperative *pi'lax* 'fear!', *pi'šax*, 'be at peace!', *ri'kab* 'ride!' *li'qe:* 'take!' (from **palax* etc.); **piri:s-*, **puru:s-*, probably non-Akkadian; **puru:ss-*, probably from **puru:s-; parru:s-*, doubtful, possibly also from **paru:s-; pirri:s-* doubtful; *parass-* non-Semitic. All these patterns, and a few others, are mostly rare and not primary.

Important are the diminutives **pi/ura:s-* (also diminutive of endearment, reverence) and **pu/irays-* Akk. > **puri:s-*, also pejorative).[214] R. Hetzron suggests that the palatal sounds *-i-*, *-y-* symbolize littleness, as in many other languages.

5.9. Vowel length. Vowel length, once created, certainly did have an impact on the further development of the stress pattern. I believe that in the historical period of the development of Akkadian there already existed other prosodic rules, not those going back to PS.

We have already pointed out that it is possible to reconstruct the Northern Semitic vocalism on the basis of the historically attested languages, Akkadian, Hebrew and Aramaic, bringing it back to an earlier stage, where an even tone type of prosody,

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213. The same happened with the long *-i:* in the *verba ultimæ infirmæ*, and for the same reasons. The rare final *-a:* verbs had acquired the same stress type by analogy.

214. Cf. the alternation of the infix *-a:-* (in Arabic), **-au-* > *-ô-* (in Hebrew and Aramaic), *-ay-* in some Berber languages, used for the so-called "conative", or A-stirps.

like that in Arabic, prevailed. But note also that Arabic itself has short and long vowel phonemes. As I see it, the only explanation that can be suggested is that length was originally produced not by strong expiratory stress on a vowel, but rather by some other suprasegmental paradigmatic feature (ictus).

However the mobility of the stress in the historically attested Northern Semitic languages persisted, and was actually connected with length. Here it is appropriate to discuss the plural morphs which are in Semitic, and probably also in other NAA-languages and in Egyptian, typically long. According to the hypothesis that length is connected with an earlier "ictus", we must conclude that the plural morphs were dominant and hence were featured by the dominant suprasegmental marking. There is evidence in the historical period at least for Hebrew (**qå:'ṭal : *qå:ṭə'l-u:*); if the *mater lectionis* in Akkadian is to be connected with "ictus", then the same is true of the Akkadian *mater lectionis* spellings like (1) *kal-bu*, pl. *kal-bu-ú*, (2) *ik-šu-ud*, pl. *ik-šu-du-ú*, (3) *da-mi-iq-tu/dam-qa-tu*, pl. *dam-qa-a-tu* etc. Plene spellings of the (1) and (2) type become rare and later disappear after the OB period, and probably the syllables never were stressed in the strict sense of the word. But (3), although not consistently as in the case of the contracted final ("superlong") vowels, is written "plene" often enough even at the latest period of the language. The inference is that the stress on the feminine plural in *-a:t-* and on the contracted final vowel differed in quality from stress in other positions. What was the difference? In the cases of (1) and (2) the "ictus", when the langauge changed over to a central intonation type, tended to disappear under the influence of the actual stress on the base, dominant even in comparison with the importance of the plural morpheme.

5.9.1. There is still another case of typical "plene"-writing, where length arose for rhythmical reasons, namely the forms of the verbs *mediæ infirmæ: *ya-kun > ya-ku:n*, **yV-ku(w)an > yV-kân*, and especially the verbs *ultimæ infirmæ: (y)ib-ni-i*. Here the length is due to the final glide. As the reader will remember, the *verba mediæ infirmæ* and the *verba ultimæ infirmæ* derive from bicorsoûal roots leveled to the pattern of triconsonantal roots: *ya-*CC*i*C < *-CVCVC **ya-*C*i:*C < *-C*i*C; *ya-*CC*i:* < *C*i*C(*i*) < *C$_{\text{ə}}^{\text{i}}$C/*C*ə*C.[215] With a vocalic suffix, a homorganic glide appears, e.g. in the plural: *ya-*CC*iy-u:*, but with zero suffix, there is vowel length of rhythmical origin: **ya-*CC*i:*. There is no special valence in this *-i:* but the "stress" will nevertheless appear. At the stage when an "ictus" typically produced length, length would automatically produce an "ictus". However, it is probable that the final stress would be secondary: **'ta-C, Ci:*. This stress would remain on the same syllable also when a vocalic suffix appears, because **-iy- = *-i:-*. Hence in the plural *'ya-*C, C*iy-u:*, e.g. *'ɂi-b, niy-u:* 'they built', *'ra, biy-u* 'great', *ru'ba:ʔ-u* 'prince' (diminutive of reverence, like *ʔila:h-* 'god'). The question now arises, why did the contraction result in the elision of the (secondarily) stressed vowel, or even the long primarily stressed vowel, and in the lengthening of the case-

215. It may seem strange that instead of the more logical lengthening of the vowel between the two radical consonants, a vowel appears **after** both consonants, and it is this vowel that is rhythmically lengthened. However the possibility of such a phenomena is strengthened by the analogy of Belova's law, according to which a PAA C*ə*C-root, which usually produces *C$_{\text{ə}}^{\text{i}}$C/*C*i:*C in Semitic, produces a **y*-CC-root in Egyptian. By the same token also *CC*y*! But cf. 5.2.6.

vowel, unstressed? At least two reasons can be suggested: (1) Elision of the case-vowel would leave the word without inflection which at that point of development of the language was still relevant. (2) Two stresses on contiguous syllables are unstable, hence the development would be *'ʔi-b , niy-u:* > *, ʔi-bni'y-u:*, *'ra- , biy-u* > *, ra-bi'y-u* and even by analogy *ru'baʔu* > *, ruba:'ʔu*. Only from here do we reach *ʔibn*, *rab*, *rub* at the stage of the late OB and MB dialects. (The contraction did not take place in the Assyrian dialect, where the development was *'ʔi-b , ni*, *'ʔi-b , niy-u:*, *'ra , biy-u*, *'ru , ba:'-u* > *'ʔibni*, *'ʔibniʔu*, *'rabiyu*, *ru'ba:ʔu*, with loss of the secondary stress).

In Akkadian, the non-contracted final vowels, both the short and the long ones, were still alive in the middle of the second millennium, while the mimation, that relic of a postpositive article (*JaDPA*, p. 215), had already died out: *kalbum* > *kalbu*, gen. *kalbi*, pl. *kalbu:*, obl. case *kalbi:*; *ʔikšud*, pl. *ʔikšudu:*; also *ʔibni:* etc. The length of the plural morph of the noun was certainly still there: sg. was unmarked, pl. was marked. By Neo- and Late Babylonian the cases were extinct, and the forms in question developed > *kal(ə)b*, pl. *kalbi; ʔibni*. The next stage of development was to *kalb(ə)*, pl. **kalb(ə); ʔibn(ə)* with the neutral vowel tending towards zero. However, the plural had still to be distinguished from the singular. There had been an allomorph for the pl. *-i:*, namely *-ê*. Its origin and rules of use have never been clearly formulated. The allomorphs *-i:* and *-ê* are often encountered in the same text. I suppose that *-i:* is generally the historical spelling, while *-ê* is the one corresponding to the actual pronunciation. Since [e] is an allophone of both /a/ and /i/, the difference between pl. *i:-* and pl. *-ê* is first of all that of stress. (Cf. the examples quoted by Reiner:[216] *'ʔasmara: , ni:* : *ʔasmara:nê*). A stressing of the vowel of the plural morph was necessary to save it from elision, and it led also to its lengthening. Stressed final vowels are not elided, but they are not necessarily written "plene". No similar development took place in the verb. The *-u:* in **ikšudu:* was contracted, but did not disappear (spelled in the Aramaic way with a consonantal *mater lectionis: ik-šu-du-u?* in Neo- and Late Babylonian). The reasons are probably (1) that the secondary stress could and had survived in a trisyllabic word-form: sg. *'ʔikšud*, pl. *, ʔikšu'du; 'ʔibn(ə)*, pl. *ib'n*; cf. in the *verba mediæ infirmæ: ʔu-ki:n* > *'ʔukin*, *ʔu-'ki:n-u:* > *ʔu'kinnu* > *ʔu'kinnə*, with the long consonant rescuing the vowel from elision.

5.9.2. Returning to the final contracted vowel, the so-called "superlong" one, it is still to be explained why this vowel is **always**, not only optionally, written *plene*. At the same period when the plural was still clearly distinguished from the singular by its vowel being long (*kalbu*, pl. *kalbu:*), two final vowels divided by a glide were contracted and thus became long. It could have been expected that the fate of the long vowel in **ʔibnu:* would be the same as in *kalbu:*. This was not the case. There was a difference betwen the two long vowels, and they were actually *ʔibn* and *kalbu:*. Thus we come again to the the notion of the "superlong" vowel having had some extra suprasegmental features to distinguish it from the simple long vowel. Was it because the "superlong" vowel was originally two vowels, and hence actually longer than the simple long one? Such distinction would probably have been short-lived. Was it because the "superlong"

216. Reiner 1966 §5.3.4.2. The problem of the Akkadian plural forms is there treated differently.

vowel was stressed? If so, why? Or was it because the "superlong" vowel, contracted from two vowels, had a specific accent contour, e.g. ˜ ? The latter solution seems to me the most probable.[217]

5.9.3. Let us compare the fate of the morpheme which is next in frequency in being written *plene*, namely the feminine plural ending in *-a:tu/i(m)*.

There are two ways to express the nominal plural in AA (here I disregard the complicated problem of broken plurals which originally must have been a method of forming collective and abstract nouns, see Diakonoff 1988:65-66). One way is usually thought to have been the following: lengthening the **gender** morph (f. *-(a)t- : -a:t-*). When the gender morph was zero, then the **case** morph was lengthened.[218] The **Akkadian** system was the following (note the special endings for masc. pl. adjectives):

SINGULAR	PLURAL	
MASCULINE		
	NOUNS	**ADJECTIVES**
Nominative *-u(m)*	Direct *-u:*	*-u:t-u(m)*[219]
Genitive *-i(m)*	Oblique *-i:*	*-u:t-i(m)*
Accusative *-a(m)*	(no mimation!)	
FEMININE	**(NOUNS AND ADJECTIVES)**	
Nominative *-(a)t-u(m)*	Direct *-a:t-u(m)*	
Genitive *-(a)t-i(m)*	Oblique *-a:t-i(m)*	
Accusative *-(a)t-a(m)*		

The Northern Central languages had the same system, but contrary to Akkadian, the masculine substantive had preserved the mimation *-ma* in the plural (see below for the *-a*), while the feminine nouns lost the mimation altogether. Southern Central (**Arabic**) has preserved the full original inflection of the plural only for participles, as follows:

	SINGULAR		PLURAL	
	MASCULINE	**FEMININE**	**MASCULINE**	**FEMININE**
Nom.	*-u(n)*	*-at-u(n)*	Dir. *-u:-na*	*-a:t-u(n)*
Gen.	*-i(n)*	*-at-i(n)*	Obl. *-i:-na*	*-a:t-i(n)*

217. This is a secondary extended stress, not identical with the one that might have existed at the PAA or NAA level.

218. But the accusative sg. *-a* being originally an allomorph of the absolute or zero case (see Chapter 4. n. 91), the *-∅//-a* form had no plural. Since in PS a nominative construction of the sentence had replaced the ergative one, an accusative was needed also in the plural. Hence the genitive morph, which originally was a morph used for a very general subordinate case (see Diakonoff 1988:60), took over also the function of the accusative plural. The development cannot be very early, since the differentiation of the *-u* and the *-i-* case was in itself a development of a post-PAA date, and since the Cushitic data show that *-i* was originally the case of the ergative and the subordinate genitive etc., while *-u* was introduced with the change-over to the nominative construction.

219. The origin of the morph *-u:t-* deserves special investigation. Of the Semitic languages, it appears, for example, in Akkadian which also has a morph *-u:t-* denoting abstract nouns derived from concrete nouns. As usual in many other types of plural formation in Semitic, the semantics of abstraction would probably antedate the semantics of plurality. Note, however, that in Berber (Kabyle) there is a plural morph *-it* for all persons of the stative-qualitative predicate, which may be identical in origin with Akk. *-u:t-*. However, judging from the frequency of "plene" writings, the morph should rather be regarded as *-t-*. Note also the frequent plural morph *-t* in Agaw and sometimes in Chadic.

Acc. *-a(n)* *-at-a(n)*

The other way consists, as established by Greenberg (1955), of suffixing or, more often, infixing the plural morph *-a-*. In Semitic, this way of forming the plural has, to a certain extent, influenced the *pluralis fractus*. Otherwise the plural morph *-a-* was suffixed to the postpositive article (Sg. *-m/n*, Pl. *-ma/na*), and in **Hebrew**, additionally infixed into the so-called *nomina segolata*, i.e. bases of the patterns **pars-*, **pirs-*, **purs-*: *kälä̆b* 'dog', Pl. *kəlâ:bi:m* (< **kalb-u*, **kal-a-b-i:-ma*). The plural *-a-*morph plays an important role in **Aramaic**:

	SINGULAR	PLURAL	SINGULAR	PLURAL
St. abs.	*kəʾlaḇ* (> **kalb-u*)	*kəlaʾḇ-i:n* (< **kal-a-b-i:-n(a)*(?)	*maləʾkat* (> **malk-at-u*)	*maləʾk-a-n* (nunation, a former article)
St. cstr.	*kəʾlaḇ*	*kalʾbê* (< **kalb-ay*)	*maləʾkat*	*maləʾk-a:-t(ə)-*
St. emph. (with art.)	*kalb-a:* (< **-ha:*)	*kalbayya:* (< **kalb-a-y-ha:*)	*malkoʾt-a:*	*malk-a:-ʾt-a:*

The masculine plural construct state from **kalb-ay* was originally a casus obliquus. An archaic text has a form **klbw*, i.e. [*kalb-a-w] in the direct case. With a suffix pronoun of the 3rd person masc. we have *kalb-ô-hi:*.

Here we can see that the plural fem. in **-a:t-* is not the result of the lengthening of the gender morph, as is postulated for Akkadian, but obviously the result of introducing the plural *-a-*morph in a position directly after the base (often with infixation inside the base at a later period). There is every reason to believe that the same was the case in the Akkadian fem. plural. However, Arabic, a language with no vowel elisions, shows us that the original form of the feminine morphs was not *-t-/-at-*, but simply *-at-*. This means that the "lengthening" of the feminine morph to form the plural actually involved the insertion of an extra *-a-* beside the already existing *-a-* in *-at-*, which would lead to the creation of a contracted *-â-*, i.e. [¯a]. That this was the case is shown by AA examples where the feminine plural morph actually consists of two syllables, as the Aramaic allomorph for *-a:t*, namely *-a:wa:t*, the Minæan (ESA) *-ht* = [-a:ha:t], and the Egyptian *-wt* = [-a:wa:t] which is the regular feminine plural morph in that language.

Thus, the Akkadian feminine plural morph probably came from **-a+at-V* which resulted in a contrasted "superlong" vowel *-ât-*. This must be the reason why the "plene" writing is so frequent (not only in Akkadian but also in Hebrew, where the morph *-ôt* is written "plene" with few exceptions). From the point of view of Akkadian phonetics, the masculine plural *-u:*, *-i:* could easily be explained as coming from **-a+u*, **-a+i*, as in Aramaic, but this explanation does not work for the Western forms *-u:-ma/na*, *-i:-ma/na* with the mimation/nunation article.[220]

Note that the enclitic article *-ma* must have also existed in the Proto-Akkadian plural nouns, as it does in Western and Central Semitic plural nouns. Even if other factors (dominance of the plural morpheme) were not involved, this alone could be

220. In Proto-Hebrew Sg. **kalb-u(-m)*, Pl. *kal-a-ʾbi:ma*, the infixed archaic plural morph was actually redundant, and hence bore no "ictus". Compare Berber, where the usual masculine plural morph is *-ən*, *-in* (< **i:-n(a)*), and the usual feminine plural morph is *-a-n* (< **-a:-n(a)* < **-a-a-na*), where the first *-a-* is probably the original feminine gender morph, cf. 5.5.1. (5a).

responsible for the moving of the "ictus" to the syllable before the enclitic, and hence to a lengthening of the vowel, which was retained for a while after the loss of the article. However, it is quite probable that the infixation of *-a-* into the feminine plural (with "ictus" on it, since the plural morph was one of the dominant ones) was felt as lengthening of the feminine morph, and parallel forms emerged in Akkadian for the masculine Substantive plural *-u:*, *i-:* and, by analogy, for the masculine adjective plural *-u:-t-*[221]

5.9.4. We have now come to the end of our exposition of the hypothesis explaining the possible origin of vowel length in Semitic. Not all the details could be included, and even the main points are hypothetical. What mattered to the author was not proclaiming the absolute correctness of this or that part of the hypothesis, but pointing out that there is a problem, and there must be ways to solve it. Our hypothesis is at present just the first one of the possibilities.

5.10. The phonemes /e/ and /o/. A few more words are in order on the vowel /e/ (and +/e:/, +/ê/) characteristic of Akkadian and, as has lately appeared, of Eblaite. Originally it appears instead of *a* or *i* in contact with ʕ and ḥ and thus was an allophone of the first two. It has, however, survived the dropping of these two consonants in Akkadian. It came to appear also in contact with *x* and *r* (the latter possibly to be pronounced as uvular?),[222] and later also in other positions, e.g. in final position for *-i* (MAss., NAss.), and finally in the newly created plural morph *-ê-*, thus already as a phoneme. Its actual pronunciation is unknown, [e] is little more than a guess. It could, e.g., have been a back close [ɪ]. The selection of the pronunciation [e] rather than [ɪ] is due to Hebrew and Greek transcriptions of Akkadian, as, for example, in the DN Akk. *Be:l*: Hebrew *Be:l*, Greek *Be:los* (< **baʕl-*).

5.10.1. Note that a vocalic phonological subsystem (*a*, *e*, *i*, *u*) is asymmetrical and hence unstable:

a *u*
e –
i

This is another proof that Eblaite *e* is not a phoneme. In Akkadian, however, /e/ is a phoneme indeed. Nevertheless, nearly 100% of Akkadian words containing *e*, not counting the cases of laryngeal influence, are borrowings from Sumerian. By their sheer number they have secured for /e/ a phonemic status. The Akkadian morph *-ê* is, as we have seen above, secondary.

5.10.2. However, the existence of an /e/ in the vocalic subsystem requires also an /o/. It certainly had existed (in spite of the doubts of I. J. Gelb) in Old Akkadian, as cor-

221. The *-û-t-*, the plural ending of adjectives, is a local phenomenon inside Semitic, and not an early one. It coincides with the morph of abstract nouns and was probably formed in both cases from the masculine plural morph *-u:* and the morph *-t-* which was not only a feminine morph (probably not a feminine ending at all in its origin), but also a morph of abstraction, passivity etc. Of course, it is placed not in its original and natural place (before the case morph), but the formation is secondary anyhow. The vowel is superlong (by analogy), on the same evidence as *-û-* in *-ût-*.

222. From very old times on, Hebrew had two different prounciations of /r/, one as an alveolar sonant which could be geminated, the other a postvelar fricative [R], cf. the general Masoretic treatment of *r* as postvelar, e.g. as not geminated (*məbå:reːx* < **mubarrik*) with compensatory lengthening of the vowel, but also the type *kårat* (< **kurrat-*) (Ez. 16:4), read [korrat] with the [rr] geminated.

reclty pointed out by S. Lieberman (1979), and it has as certainly existed in Late Babylonian, which is evidenced by the Græco-Babyloniaca texts (Pinches 1902, Schileico 1928/29, Sollberger 1962, Diakonoff, *JaDPA* p. 314sq, Geller 1983, Blank 1984, Dandamaeva 1985), e.g.:

Akkadian		**Greek transcription**
muxxi-šu	[woxs] 'on him'	οζ
ʔi:puš	[ʔi:ƥos] 'made'	ιφος
te:rub	[te:roƀ] 'you entered'	τηροβ
-šunu	[-son] 'their'	-σον
ʔurrik	[ʔorriǩ] 'make long'	ορριχ
ʔu	[ʔo] 'and'	ο
ʔuznu	[ʔoʒon] or [ʔozon] 'ear'	οζον
šulbur	[soləƀor] 'making old'	σολοβορ
ʔumma:nu	[ʔomma:n] 'wise man'	ομαν
libittu	[liƀit] 'adobe brick'	λιβιθ
ʔišpuk	[ʔispoǩ] 'he poured'	ισφοχ

and even Sumerian ***dumu*** 'son' has the Greek transcription δομ.

Furthermore:

ʔu:mu	[ʔo:w] 'day'	ω
ʔu:mi:	[ʔo:wi:] 'days'	ωει
in(a) bu:rti	[ʔib-bo:rt] 'in the well/pool'	ιβωρτ
-šum-ukin	[-sowoǩin] part of a name	-σουχιν
ʔisṭuru	[ʔišṭor(!)] 'wrote'	ιστορου
ṭupšarru:tu	[ṭoƥšarrût] 'scribal art'	τοφσαρουθ
Nabû	[naƀû] < **Nabi(y)u(m)* name of deity	Ναβου

The table, incomplete though it is, is instructive. It supplies information which cannot be gleaned from Hebrew and Aramaic transcriptions with their late and unreliable Masoretic vocalization, nor from transcriptions used in other languages employing cuneiform, since the writing system of the latter languages was borrowed from Akkadian and had no graphic means for expressing what had not been possible to express in that system of writing.

It appears that Akkadian short (etymological and traditional) /u/ is in all cases transcribed as Greek *o micron*. The single case of ιστορου cannot be taken into account, because by the Late Babylonian period the subjunctive morph *-u* was actually no longer pronounced, and the Greek transcription is due to the teacher's hypercorrect literary pronunciation. -σουχιν is the result of a contraction [ou] < [*-owo-], and may also be set aside. Important are the three examples of ωει, τοφσαρουθ and Ναβου:

the latter DN is consistently transcribed by Greek authors with -ου-[223] and in Hebrew as -*û*. Thus, ου is here obviously the transcription of the Akkadian "superlong" , and probably supports the hypothesis that it was pronounced with a contoured tone and consisted of two moræ.[224] The same must be true for the morph *-t* spelled τοφσαρουθ. In Akk. *ʔu:mu(m)* we also have a contraction (< PS **yawm-*) and, as shown by S. Lieberman, it was most probably pronounced [*yo:m-] in Old Akkadian. This is, however, not a contraction of **two** vowels, and the resulting vowel is hence not superlong. There is no positive proof that the [-o:-] < [*-au-] ever became [-u:-] rather than [-o:] in Akkadian, e.g. *ʔu:bil* (< **ya-wbil-*) 'he brought' should be read [ʔo:bil] and not [ʔu:bil] at all periods.

The same holds good for the short [o]. I suggest that the /o/-phoneme attested in the Græco-Babylonica texts took root in the Akkadian phonological system at the same period as /e/ became a phoneme, and that the traditional, transcriptional Akkadian short *u* was actually [o] in all cases at least from the Old Babylonian period on.

What traditionally is transcribed as long *u:* represents [o:], at least in the case of simple contractions. In other cases, it might have been [u:] or [o:], but the superlong *û* must have been [-u:].[225] It is probable that not only had ει developed to [i:] in the Hellenistic period, but also ου to [u:].

5.10.3. From the above table we also learn that etymological *m* was or could be pronounced [w] in all positions. The same seems to have been true of Elamite as well. The phenomenon of a development *m* > **w̃* > *w* may also be as old as the later Old Babylonian period, when we first encounter spellings of *m* for etymological **w* in a number of cases.

5.11. Sumerian phonology and Akkadian. And now we have arrived at the last issue, that of the contribution of the Akkadian data to Sumerian phonology.

This is not the place to present a complete exposition of the extremely complicated and little known field of Sumerian phonology.[226] The problem will be treated in

223. Thus by Claudius Ptolemæus, see Wachsmuth 1985:305.

224. If we adhere to the third mora hypothesis, we must even count the final superlong vowel as three moræ.

225. Less probably a diphthongoid of the [uo] or [ou] type?

226. The following is a short bibliography of problems concerning Sumerian transcription, phonology and phonetics: Poebel, A., *Grundzüge der sumerischen Grammatik*, Rostock 1923, III. Lautlehre, pp. 12-31; Sollberger, E., *Le système verbal dans les inscriptions "royales" présargoniques de Lagaš*, Genève 1952, pp. 15-19; Falkenstein, A., *Grammatik der Sprache Gudeas von Lagaš* I, Rome 1949, pp. 11sqq; id., *Das Sumerische*, Leiden 1959, pp. 22-32; Jestin, R., *Notes de graphie et phonétique sumériennes*, Bib. de l'École des Hautes Études, IV[e] section, 317, Paris 1965; Krecher, J., *Verschlusslaute und Betonung im Sumerischen*, AOAT 1, pp. 157-197; Parpola, S., *Transliteration of Sumerian: Problems and Prospects* (Studia Orientalia 46), Helsinki 1975, pp. 239-298; Civil, M., "From Enki's Headaches to Phonology", *JNES* 32:57-61 (1980); id. "The Sumerian Writing System: Some Problems", *Orientalia* NF, 42:21-34 (1983); Diakonoff, I.M., "Ancient Writing and Ancient Written Sources", *Festschrift Th. Jacobsen*, AS 29, 1976, pp. 99-121; Lieberman, S.J., *The Sumerian Loanwords in Old Babylonian Akkadian*, I, Missoula 1977; Römer, S.H. Ph. *Einführung in die Sumerologie*, Nijmegen 1982, pp. 37-39; Thomsen, M.-L., *The Sumerian Language*, Copenhague 1984, pp. 20-26, 37-47.

detail in Mrs. Larisa Bobrova's Ph.D. thesis. Below I shall state the main points of necessary enquiry, as I see them.

(a) We know about Sumerian phonetics and phonology, first, from Akkadian transcriptions in some ancient Sumero-Akkadian vocabularies made for the Sumerophone schools (***é-dub-(b)a***, ED below) at a period when Sumerian was apparently no longer in everyday use in most Akkadian cities, namely, in the Old Babylonian period (19-18th centuries B.C.); notably from the so-called series Proto-Ea, Ea, and Aa; and secondly, by analyzing borrowings from Sumerian into Akkadian.

(b) The vocabularies use the Later Orthography[227] (cf. 2.5.), and apply the following sign-series to express the Sumerian phonemes:

b, p, d, t, š, s, z, g, k, h, m, n, l and *r*. NB: no emphatics!

This should correspond to the pronunciations [b], [p], [d], [t], [s] (or [ś], or [ŝ]), [c] (ts), [ʒ] (dz), [g], [k], [x], [m] (and also [w̃], [w]?), [n], [l] and [r].

(c) The Sumerian borrowings into Akkadian fall into two series: (1) borrowed in everyday life, for everyday objects and notions; (2) borrowed through the ED, for "bookish" words. In group (1), *t* or *ṭ* is used for ED *d; k* (and, in specific cases on which see below, *m* and *n*) for ED *g; š* often for ED *s*. From this it appears that the actual opposition in Sumerian was not "voiced : unvoiced", but "lax : tense". Lax plosives tend to be dropped in Auslaut but reappear before vocalic morphs.[228] *NB*: tense is not = emphatic, because early (but not later!) Akkadian emphatics were probably still glottalized, and always unvoiced.

(d) Besides the usual scribal Sumerian, called ***eme-gir***$_8$ (EG), there further existed a dialect attested from the OB period on and used for passages spoken by women in epics and by ***gala***-priests, e.g., in cultic texts recited by them. There is good reason to believe that this dialect, called ***eme-sal*** (ES) was the specific language used by women and eunuchs. Numerous ethnographic parallels are known to have existed and to be still in existence. It may nevertheless have its origin in a local dialect.

(e) However, only the pronunciation was taken over from that dialect. The morphological difference between EG and ES is almost nil. In the vocabulary there are a few differences, mostly relating to words whose "male" pronunciation may be thought to have been tabooed for women, such as 'man', 'unmarried girl', 'little (one)', 'husband', 'king', 'chief', 'master', 'herdsman', 'queen', 'lady', 'eunuch, singer', 'priest', 'cow', 'pig', 'tomb, grave', 'shadow', 'mind', 'to carry, bring', 'to go, walk', 'to care for', 'to ask for', 'to pull (e.g. hair)', 'to beat', 'to flog'; also the numerals. The main difference is in pho nology. Regular correspondences can be established. With the exception of the above words, the glottochronological distance between ES and EG is zero, which means that the lexical development of ES was identical to that of EG. Nevertheless, the phonemic reflexes between ES (actually the dialect which lent its phonetics to ES) and EG are regular, so that a Proto-Sumerian phonological system can be reconstructed.

227. This is a simplification. The Later Orthography had a number of variants, see Lieberman 1977:87sq.

228. The exceptions are extremely rare, if any.

(f) The Sumerologists have from time to time found that there must have existed a number of Sumerian phonemes not listed above under 5.11.b. Thus, different sign series are used in Sumerian for two separate groups of words containing, for instance, *g*. One of them corresponds to *g* (but also *z*, *b*) in ES. It is transcribed *g* in the ED tradition, but *k* in the first group of borrowings. The other one corresponds to *m* in ES and transcribed usually as *g*, but in a few cases as *m* or *n* in the ED tradition and in borrowings. These two phonemes are now often transcribed as *g* and *g̃*, respectively, although we do not in all cases known when the ED *g* is actually [g]. Only when a vocalic suffix was added did the Sumerian scribes use a separate sign for, e.g. [ga] and [g̃a], namely *ga* and *gá*. According to Civil and Lieberman, there are also cases where the ED tradition vacillates between transciptions of roots with *d-* and with *r*-signs, or with *d-* and with *š*-signs, and a transcription *ř* has been hence suggested. However, here too, there is no certainty that we can sort out this phoneme from the texts in all cases, nor whether the different sign series indicate in each case a separate phoneme (or separate phonemes), or whether a number of variant monosyllabic stems are involved.

(g) There is good reason to believe that Sumerian may have had **two *b*'s**, one of them being dropped in Auslaut (= lax **p*), the other not; **two *p*'s** (tense **ṗ*). One of them is reflected in ES medially as *-b-*, the other as *-p-*. Tense **ṗ* does apparently not occur in Auslaut.

There were **several *d*'s**, one dropped in Auslaut (lax **t*), others not. There was a *d* (probably palatalized [d^y]) reflected as *z* ([ʒ]) in ES, and another non-palatalized (ES *d*), and probably still another, possibly labialized, transcribed as *t*[229] in ES and in non-ED borrowings, occuring only before *u*. There was possibly **one *t*** (tense *t·*), never used in Auslaut.

There were at least **four *g*'s**, one dropped in Auslaut (= lax **k*); one *g* reflected as *d* ([d^y] palatalized?) in ES, another *g* (probably the same lax **k*) reflected as *g* in ES; a third *g* (probably labialized [g^w] reflected as *b* in ES (well attested only medially and in Auslaut). All these have the same reflexes in the ED tradition (namely *g*), and in the first group of borrowings (apparently always *k*). One must list separately the above mentioned nasalized *g̃* ES *m*, ED usually *g* (but, as mentioned above, a sign series different from the other *g*'s is used); however, sometimes also *n* or *m*, similarly in borrowings. Note that this, or yet another phoneme, **ỹ* (nasalized?) seems to be transcribed as *x* (!) in Elamite Akkadian.

There was apparently only one tense ***k·***, attested also in Auslaut, but extremely rarely (Powell 1982). In the Sumerian genitive morph *-ak-* (written ***-a-ka***, ***-a-ke*$_4$** when followed by another vocalic morph), the *k* is dropped in the ED tradition (against the rule for tense consonants), but retained in Akkadian borrowings, often as long *-kk-*.

There were at least **two *x*'s**, one of them dropped, the other retained in Auslaut. The opposition is probably "lax : tense" also here, or else "voiced : unvoiced", because in ED transcriptions at least one *x-* alternates with *l-* [l?] and *g-* (also in ES), and the

229. Actually, only one sign, *ṭu*, is involved, but it has also a value *du*$_5$. Hence the use of the signs *du* ~ *du*$_5$ is parallel to the use of the signs *ga* ~ *gá*:two different *d*-phonemes.

same or another *x*- alternates with *r*-. Note that *x* is used for ʕ (*ʕain*) in Eblaite and in OB transcriptions of Amorite.

The question of the pronunciation of ***m*** is a very moot one. The Akkadian development of *m* > [w] unparalleled in other Semitic or, in fact, in any AA language, but attested in written texts from the late OB period on, must be due to Sumerian substratum. Note also that not only EG *ḡ* alternates with ES *m*, but sometimes also vice versa! However, if in some cases Sum. *m* (as transcribed) was [w], in other cases it was not, because Sum. ***dumu*** 'son' (thus spelled by the ED tradition) survives with an *-m-* into the Græco-Babyloniaca (*dom*), when native Akkadian *m* had already in all positionw dûoped into *w*.

There were at least **two *n*'s**: one reflected as *n* in ES, the other (probably a palatalized [nʸ] reflected as *š* ([š]?) in ES. In ED and in borrowings the palatalization does not seem to be attested. An *n*- develops into *l*- in EG in the vicinity of labials and *u*. It may have been a labialized [nʷ] or, less probably, the already established palatalized [nʸ]. It is attested in borrowings as *l*.

There certainly were at least **two *l*'s**, one dropped in Auslaut, the other not. Different signs are used for ***l*$_2$*a*** ([la], possibly, the same *l* which alternates with one of the *x*'s), and for ***l*$_1$*a***:, the signs are ***la*** and ***lá***. Because the sign ***lá*** is also used for ***lal*** with the consonant dropped in Auslaut, but ***lál*** was not used for ****la***, we can confidently say that ***l*$_1$** (as in *lal* > *lá*) was dropped in Auslaut, and ***l*$_2$** (as in *lál*) was not. The difference was possibly: palatalized l_1 vs. lax non-palatalized l_2, probably like Polish [ɫ] (> Bielorussian *w*).

There may have been **two or three *r*'s**. It is not quite clear whether one of them could be dropped in Auslaut or not. The non-dropping one may also have included two kinds: one of them, alternating with one of the *x*'s, might have been uvular. (Since *r* in Akkadian affects the contiguous vowel in the same way as *x* does, it also might have been uvular). There is also an *r*, no doubt a dental-alveolar and perhaps palatalized, which alternates with *l* (*lib* ~ *rib*). Civil and Lieberman's *ř* was perhaps still another phoneme.

5.11.1. The sibilants. It is here that the new AA and Old Semitic evidence comes in. We know that the Later Orthography *š* was ([š] or [ŝ]), and that there were also attempts to reproduce [s]. In the ED tradition there are numerous cases of vacillation between spelled *š* and *s*, both in Auslaut and in Anlaut, which seems to me to be evidence for Sumerian [s]. But there must have also existed a [š], namely in the alternation with [nʸ]. One case of an alternation *tuš* ~ *suš* is found, but this may be a simple scribal error. In borrowings, we find two different developments: (1) Sum. *s* (spelling) > borrowed *š* (spelling), as in ***ensi-a(k)*** > *******inši:ʔakkum*, *iššiːʔakkum* etc. (2) Sum. *s* (spelling) > borrowed *s* (spelling), which should be read [c] (or [c·] tense), also for Sumerian proper. The *z* of the ED tradition should be regarded as some other affricate.

5.11.2. The vowel system. The Sumerian vowel system is, as could be expected, and as has been shown by Lieberman, symmetrical:

a *u*
e *o*
i

5.11.3. Closing words. The facts look scattered and diffuse. Especially annoying is our inability to identify the phonemes revealed by opposition through the feature "dropping in Auslaut : retained in Auslaut" with phonemes sorted out by other characteristics. Any hypothesis which would involve the decrease in the number of differentiating features might be attractive.

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LIST OF ABBREVIATIONS

AA	Afrasian, Afroasiatic
AAL	Afroasiatic Linguistics, Malibu, California
AF	Ägyptologische Forschungen, Glückstadt
AfO	Archiv für Orientforschung, Wien
Akk.	Akkadian
AOAT	Der Alte Orient und das Alte Testament, Neukirchen-Vluyn
AS	Assyriological Studies, Chicago
BChE	Berber, Chadic and Egyptian
BSLP	Bulletin da la Société Linguistique de Paris
CHVA	Comparative Historical Vocabulary of Afrasian
ED	**é-dub-(b)a** tradition of Sumerian
EG	Eme-gir_8 dialect of Sumerian
ES	Eme-sal dialect of Sumerian
ESA	Epigraphic South Arabian
GAG	Wolfram von Soden, *Grundriss der Akkadischen Grammatik*, Rome 1952
HSS	Harvard Semitic Studies
HUECL	I.M. Diakonoff and S. A. Starostin, "Hurro-Urartian as an Eastern Caucasian Language", *MSS* 19 NF, München 1986
IOS	Israel Oriental Studies
IOSTI	*Issledovanija v oblasti sravnitel'noj tipologii indoevropejskikh jazykov*, Moscow-Leningrad 1981.
JaDPA	I.M. Diakonoff, *Jazyki Drevnej Perednej Azii*, Moscow 1967
JAOS	Journal of the American Oriental Society
JCS	Journal of Cuneiform Studies, Philadelphia.
JNES	Journal of Near Eastern Studies, Chicago
KAV	O. Schröder, Keilschrifttexte aus Assur verschieden Inhalts. Leipzig 1920.
LAA	E. Reiner, *A Linguistic Analysis of Akkadian*, Paris: Mouton 1966
LB	Late Babylonian
MA	Middle Assyrian
MAD	Materials for the Assyrian Dictionary, Chicago
MB	Middle Babylonian
MSA	Modern South Arabian
MSS	Münchener Sprachstudien
NAA	Northern Afrasian
NB	Neo-Babylonian
OAkk.	Old Akkadian
OLZ	Orientalistische Literaturzeitung
PAA	Proto-Afrasian
PEC	Proto-East-Caucasian
PNR	Primary nominal root
PS	Proto-Semitic
RGTC	Répertoire géographique des textes cunéiformes
SAA	Southern Afrasian
SHL	I.M. Diakonoff, *Semito-Hamitic languages*, 1965, Moscow, Nauka.
VDI	Vestnik Drevnej Istorii
ZA	Zeitschrift für Assyriologie